KREYN, O.Ye.; KORAKHIDZE, L.P.

Comparative economic evaluation of methods of preparing molybdenum disulfide. Izv. vys. ucheb. zav.; tsvet. met. 2 no.3:130-134 '59.
(MIRA 12:9)

1.Moskovskiy institut tsvetnykh metallov i zolota, Kafedra metallurgii redkikh metallov.
(Molybdenum sulfides--Costs)

ARASHIN, Georgiy Ivanovich; POGOSYAN, Grigoriy Muradovich; KREYN, O.Ye., retsenzent; BELIAYEVSKAYA, L.V., retsenzent; SINYAKOV, A.F., retsenzent, red.; KAMAYEVA, O.M., red.izd-va; KARASEV, A.I., tekhn.red.

[Tungsten and molybdenum production processes] Tekhnologiia polucheniia vol'frama i molibdena. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 259 p. (MIRA 13:10)

(Tungsten--Metallurgy) (Molybdenum--Metallurgy)

21.1320

~~6501~~ 69543

S/078/60/005/05/30/037
B004/B016

AUTHORS: Meyerson, G. A., Kreyn, O. Ye.

TITLE: Preparation of Hafnium Carbide

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 5, pp. 1164 - 1167

TEXT: The authors deal with this problem because HfC might be of interest for reactor engineering, since it is a substance with a high melting point and a high neutron absorption coefficient. They treated pure HfO_2 with lampblack at 0.2, 1, and 5 torr and temperatures of between 1,800 - 2,200°. Table 1 shows that compounds free from oxygen were obtained which, however, contained less C than corresponds to the formula HfC. A carbide forms with defective lattice and reduced period. In experiments with carbon excess (Table 2) a carbide with nearly stoichiometric ratio between Hf and C was obtained. Fig. 1 indicates that a low pressure of CO in the reaction vessel (of the order of some torr) supports the formation of complete HfC. The lattice constants of three samples with 4.61, 4.62, and 4.63 Å were determined by X-ray analysis (Fig. 2). These values were in close agreement with the data available in publications. There are 2 figures,

Card 1/2

~~45[illegible]~~ 69543

Preparation of Hafnium Carbide

S/078/60/005/05/30/037
B004/B016

2 tables, and 9 references, 4 of which are Soviet.

SUBMITTED: July 1, 1959

Card 2/2

83122

S/078/60/005/009/001/017
B015/B064

15.2200

AUTHORS: Meyerson, G. A., Kreyn, O. Ye.

TITLE: Study of the Conditions of Synthesizing Vanadium Carbide in Vacuum

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 1924-1930

TEXT: It has already been found (Ref. 6) that in reducing V_2O_5 with carbon at atmospheric pressure the amount of carbon bound in VC did not reach the theoretical value of 19.05%, and that below 2300°C also in the absence of oxygen there were still vacancies in the carbide lattice (Table 1). The present investigation deals with the production of vanadium carbide at 0.1-10 torr and temperatures of 1500-1800°C by reduction of V_2O_5 (65.3% V) with carbon (carbon black) in a vacuum furnace. To determine the temperature range in which carbide formation took place, the process was manometrically analyzed (Fig. 1). In the substitution of oxygen by carbon, however, part of the sites occupied by oxygen remain vacant. At 1500°C and

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Study of the Conditions of Synthesizing Vanadium Carbide in Vacuum

S/078/60/005/009/001/017
B015/B064

above, oxygen can be completely removed from the solid phase in vacuum, under the formation of a solid VC-V solution (Table 2). Three sample mixtures were made to determine the influence exerted by the amount of carbon on the carbide formation (Table 3). It was found that at 1500°C and 0.1-1.0 torr also in the presence of free carbon VC-V was formed, and not VC (Table 4). At 1500°-1800°C and 0.1-1.0 torr it is possible to obtain oxygen-free carbide with a maximum carbon content of 15.5% to 17.8% (instead of 19.05%). The experiments on the influence of temperature and pressure on the composition of the product (Table 5), the dependence of the amount of bound carbon on the reaction duration at 1700°C (Table 6), and the composition of vanadium carbide obtained from a mixture with increased carbon content (Table 7), show that at 1700°-1800°C and 1-1.0 torr the maximum saturation of vanadium carbide with carbon amounting to 17.6-17.8% is reached within two hours. M. A. Gurevich and B. F. Ormont are mentioned in the paper. There are 4 figures, 7 tables, and 8 references: 4 Soviet, 1 French, 2 Japanese, 1 US, and 1 German.

SUBMITTED: June 18, 1959

Card 2/2

5.2000,15.6600

77499
SOV/80-33-1-8/49

AUTHORS: Zelikman, A. N., Kreyn, O. Ye.

TITLE: Preparation of Molybdenum Disulfide for Lubrication Purposes

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 1, pp 49-55 (USSR)

ABSTRACT: The lubricating properties of natural MoS_2 (molybdenite), supplied by the Sobin Refining Plant, and of synthetic MoS_2, were compared by testing both materials in oil suspension in TsNIIMASH and VIAM friction testing machines. The lubricating properties of both additives were practically equal. Synthetic MoS_2 was obtained: (1) on fusing MoO_3 with sulfur and sodium carbonate; optimum conditions: sulfur in 15% excess, temperature 700° C, time of reaction 1 hr; (2) on fusing $CaMoO_4$ with sulfur and sodium carbonate; optimum conditions:

Card 1/2

Preparation of Molybdenum Disulfide for Lubrication Purposes

77499
SOV/80-33-1-8/49

sulfur in 60% excess, temperature 600-700° C, time of reaction 1 hr. There are 5 figures; 5 tables; and 7 references, 2 U.S., 1 French, 3 German, 1 Soviet. The U.S. references are: R. E. Bell, R. E. Herfert, J. Am. Chem. Soc., 79, 13, 3351 (1957); R. L. Graham, L. G. Hepfer, ibid., 78, X, 19, 4846 (1956).

SUBMITTED: January 19, 1959

Card 2/2

also 1583

24,7100 (1160, 1136, 1142)

S/070/61/006/003/003/009
22792
E021/E435

AUTHORS: Zelikman, A.N., Chistyakov, Yu.D., Indenbaum, G.V. and Kreyn, O.Ye.

TITLE: Study of the crystal structure of molybdenum disulphide prepared by different methods

PERIODICAL: Kristallografiya, 1961, Vol.6, No.3, pp.389-394

TEXT: The crystal structure of powdered MoS_2 prepared by five different methods has been investigated by X-ray analysis. Sample one was formed by the interaction of molybdenum trioxide with sulphur in fused soda; sample two by the interaction of calcium molybdenate with sulphur in fused soda; sample three by the interaction of molybdenum pentachloride with hydrogen sulphide; sample four by the interaction of molybdenum trioxide with sulphur vapour and sample five by the interaction of molybdenum with sulphur vapour. Further samples were also tested - sample six obtained by the thermal dissociation of molybdenum trisulphide and sample seven obtained by the interaction of molybdenum and sulphur and hot-pressed at 1200 to 1300°C. The X-ray photographs of these samples show that the structure of all the synthetic samples is a

Card 1/4

Study of the crystal ... S/070/61/006/003/003/009
E021/E435

new type different from both hexagonal α-MoS_2 and rhombohedral β-MoS_2. Fig.3 is a comparison of the results of X-ray studies for the three types of structure (a - α-MoS_2, б - β-MoS_2, в and г new structural type). Since the interplanar distance is the same in going from one form to another, it can be assumed that the layered lattice and the disposition of the sulphur atoms around the molybdenum is retained. It is proposed that the new form is hexagonal with c greater than in the lattice of β-MoS_2. Changes can be seen in the new structure depending on its method of preparation. This is explained by statistical interchanging of hexagonal and rhombohedral packing. The lubricating properties of the artificial MoS_2 are not different from those of natural MoS_2. There are 3 figures, 1 table and 11 references: 2 Soviet-bloc and 9 non-Soviet-bloc. The two references to English language publications read as follows: S.S.Berzelius. Pogg. Ann., 7, 261, 1826; R.E.Bell, R.Herfert, J.Amer.Chem.Soc., 19, 13, 3351, 1957.

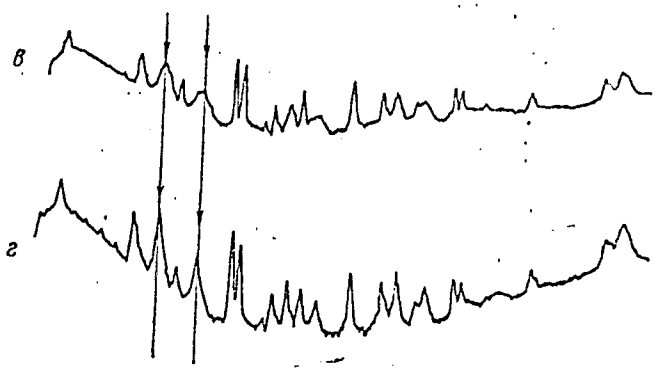
ASSOCIATION: Krasnoyarskiy institut tsvetnykh metallov im.M.I.Kalinina (Krasnoyarsk Institute of Non-Ferrous Metals imeni M.I.Kalinina)

SUBMITTED: September 5, 1960
Card 2/4

Study of the crystal ...

22792

S/070/61/006/003/003/009
E021/E435



Card 4/4

Study of the crystal ...

S/070/61/006/003/003/009
E021/E435

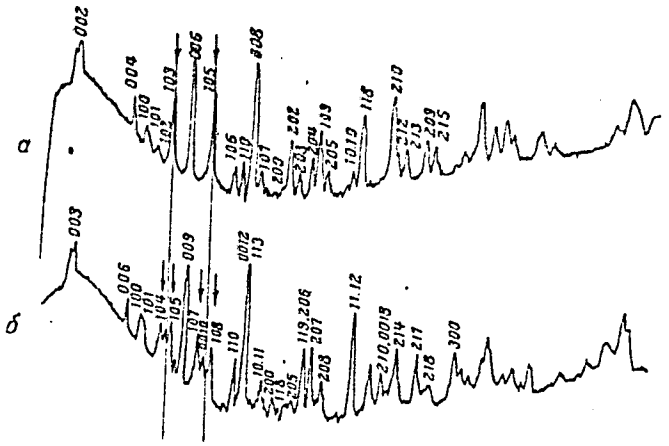


Fig. 3

Card 3/4

15.2130
5.2200

27074
S/080/61/034/003/016/017
A057/A129

AUTHORS: Zelikman, A. N., Kreyn, O. Ye., Gorovits, N. N.

TITLE: Purification of molybdenum trioxide from tungsten and admixtures of some other elements

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 3, 1961, 679 - 682

TEXT: A preparative purification method for molybdenum trioxide from tungsten and other impurities is described. The method is based on distillation of molybdenum oxychloride by heating a mixture of molybdenum trioxide and sodium chloride. Thus the tungsten content can be decreased from an initial content of 0.01 to 1% W down to 10^{-4} - 10^{-3}% W. The present method was already published by A. N. Zelikman [Soviet patent no. 1131145 (1957)] and developed as a result of prior investigations [Ref. 1: ZhOKh, 24, 1916 (1954)]. Previous experiments demonstrated the reaction of MoO_3 with NaCl at 500° - 700°C resulting in formation of sodium molybdate and dioxychloride. The latter evaporates at this temperature. On the other hand it was observed that at 500° - 650°C tungsten trioxide does not react with sodium chloride forming volatile compounds. Tests for the present method were carried out with MoO_3 + WO_3 mixtures varying the ratio of W/(Mo + W) from 1 to 29%.

Card 1/4

Purification of molybdenum trioxide from...

The mixtures were obtained by mixing an ammonium molybdate solution with ammonium tungstate solution with subsequent evaporation of the liquid and calcination (550° - 600°C) of the residue. The latter was then thoroughly mixed with finely ground sodium chloride, placed in a horizontal tubular oven and heated by passing air (about 10 l/hr). Molybdenum oxychloride sublimated, was dissolved and molybdenum and tungsten were determined. The latter was first determined colorimetrically by the method of the Vsesoyuznyy institut tverdykh splavov (All-Union Institute of Solid Alloys), but since this method was insufficient in further experiments a spectral method, developed in the MGU (Moscow State University) by N. I. Tarasevich et al. [Ref. 4: ZL, 8 (1959)] was applied. The obtained results (Table 1) demonstrate that the sublimates contain a maximum of about 0.001% W/(Mo + W), and independently of the composition of the mixture about 20% of molybdenum sublimates. Further tests were made with a quartz tubular oven (length 1 m, diameter 45 mm), using 200 g samples, passing air at a 20 l/hr rate, and heating to 650° - 700°C for 30 minutes. Thus a 20 - 22% extraction of molybdenum was effected. For tungsten contents of 0.004, 0.01, 0.03 and 1.035% in the initial material (MoO_3 from ammonium paramolybdate, molybdenic acid, or contaminated with WO_3) final products containing $8 \cdot 10^{-4}$, $8 \cdot 10^{-4}$, $6 \cdot 10^{-4}$, and $1.5 \cdot 10^{-3}$% respectively of tungsten were obtained.

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27074
S/080/61/034/003/016/017
A057/A129

Purification of molybdenum trioxide from...

The purification degree in relation to other impurities is shown in Table 3. There are 3 tables, 1 figure and 4 Soviet-bloc references.

SUBMITTED: May 27, 1960

Table 1. Purification degree of molybdenum trioxide from tungsten impurities in experiments with 2 - 3 g batches. Temperature 600°C, duration of the experiments 1 hr.

Состав смеси (1)	Отношение $\frac{W}{Mo+W}$ (% в исходн. смеси) (2)	Время хлорирования (мин.) (3)	Отношение $\frac{W}{Mo+W}$ в оксихлориде (%) (4)	Извлечение молибдена в оксихлорид (%) (5)
$MoO_3 + 1\%WO_3 + NaCl$	1.19	30	$1.70 \cdot 10^{-3}$	21.54
	1.19	45	$0.86 \cdot 10^{-3}$	21.98
	1.19	60	$1.60 \cdot 10^{-3}$	19.92
$MoO_3 + 5\%WO_3 + NaCl$	5.90	30	$0.93 \cdot 10^{-3}$	21.38
	5.90	45	$0.91 \cdot 10^{-3}$	21.83
	5.90	60	$0.91 \cdot 10^{-3}$	21.73
$MoO_3 + 25\%WO_3 + NaCl$	28.80	30	Следы (6)	20.04
	28.80	45	$1.01 \cdot 10^{-3}$	19.75
	28.80	60	$1.01 \cdot 10^{-3}$	18.91

Legend: (1) composition of the mixture, (2) ratio W/(Mo + W) (% in the initial mixture), (3) time of chlorination (min), (4) ratio W/(Mo + W) in the oxychloride (%), (5) extraction of molybdenum in the oxychloride (%), (6) traces.

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S/828/62/000/000/016/017
E071/E135

AUTHORS: Zelikman, A.N., ~~Kreyn, O.Ye.~~, Nisel'son, L.A., Gorovits, N.N., and Ivanova, Z.I.

TITLE: Separation of tungsten and molybdenum by utilising the difference in volatility of their chlorides and oxychlorides

SOURCE: Razdeleniye blizkikh po svoystvan redkikh metallov. Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst. red. metallov. Moscow, Metallurgizdat, 1962, 186-197.

TEXT: A method of separating tungsten from molybdenum, based on evaporation of MoO_2Cl_2 on heating of molybdenum trichloride with sodium chloride to a temperature of 600-700 °C, was studied. With contents of 0.01 to 0.16 and 1.035% W in the starting molybdenum trioxide the purified product contained less than (6 to 9) x 10^{-4} and 1.5 x 10^{-3}% W respectively. It was established that it is possible to separate tungsten and molybdenum by rectification of their higher chlorides, WCl_6 and $MoCl_5$ (rectification column data: diameter 30 mm, height 600 mm, 15 sieve plates, with 45 holes of 1 mm diameter).

Card 1/2

Separation of tungsten and molybdenum... S/828/62/000/000/016/017
E071/E135

From tungsten sexquichloride containing about 5% $MoCl_5$, and from molybdenum pentachloride containing about 5% WCl_6, purified chlorides containing below 0.01% of admixture of molybdenum or tungsten respectively with yields of the main fractions of 70-80% were obtained.
There are 6 figures and 7 tables.

Card 2/2

S/080/62/035/007/004/013
D267/D307

AUTHORS: Zelikman, A.N., Kreyn. O.Ye., Nisel'son, L.A. and Ivanova, Z.I.

TITLE: Separation of tungsten from molybdenum by the rectification of their chlorides

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 7, 1962, 1467-1472

TEXT: WCl_6 and $MoCl_5$ were obtained from pure metals by chlorination at 650-750°C, distilled in an argon atmosphere to separate the oxychlorides, after which WCl_6 with about 5% $MoCl_5$ or vice versa were rectified on a plate column. It was found that the impurity content of the purified chloride is less than 0.015%, and that the yield of the rectified chloride is 70-80% of theoretical. There are 3 figures and 3 tables.

SUBMITTED: June 21, 1961

Card 1/1

L 44549-65 EPF(n)-2/EPR/EWT(m)/EWP(b)/EWG(m)/T/EWA(d)/EWP(w)/EWP(t)
Pu-4/Pu-4 IJP(c) WW/JD/JG
ACCESSION NR AM5012945 BOOK EXPLOITATION UR/ 669.5 A71

Zelikman, Abram Naumovich; Kreyn, Ol'ga YEfimovna; Samsonov, Grigoriy Valentinovich

Metallurgy of rare metals (Metallurgiya redkikh metallov) 2d ed., rev. and enl. Moscow, Izd-vo Metallurgiya, 64. 0568 p. illus., biblio. Textbook for technical schools of non ferrous metallurgy. Errata slip inserted. 4,185 copies printed.

TOPIC TAGS: rare earth metal, trace metal, metallurgical process, physical metallurgy, metal property, tungsten, molybdenum, tantalum, niobium, titanium, zirconium, germanium, indium, thallium, rhenium, beryllium, lithium

PURPOSE AND COVERAGE: The book offers a description of production processes of the most important rare metals, such as tungsten, molybdenum, rhenium, tantalum and niobium, zirconium, titanium, rare-earth metals, gallium, indium, thallium, germanium, beryllium, lithium. The discussion of each metal includes a description of its physical and mechanical properties, applications, basic methods of obtaining chemical compounds from various types of raw material and the production technology of pure metals. The book is intended as a textbook for students of metallurgical technical schools and may serve as an aid for engineer-

Card 1/2

L 44549-65
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2

ing and technical personnel of the rare-metal industry.

TABLE OF CONTENTS (abridged):

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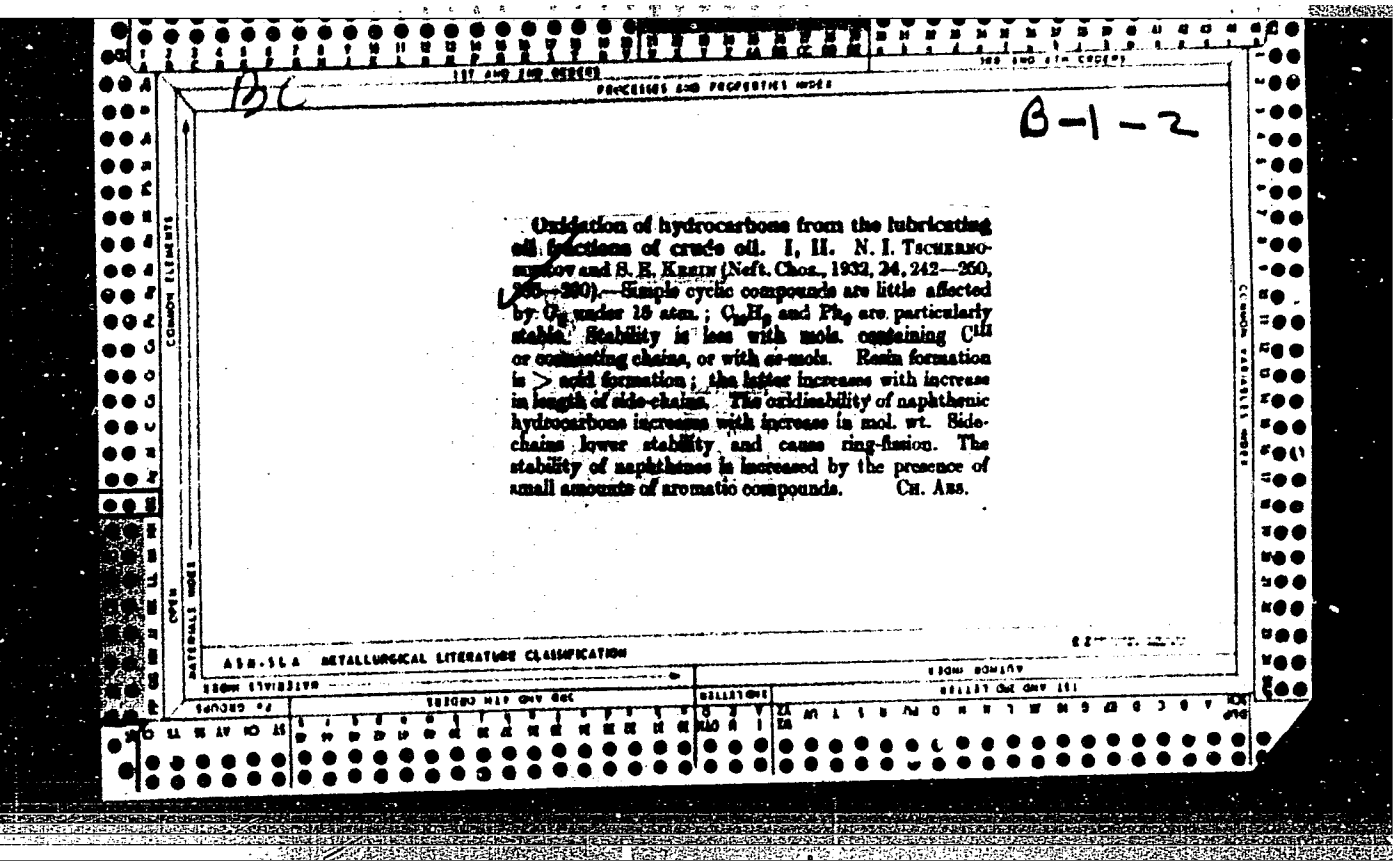
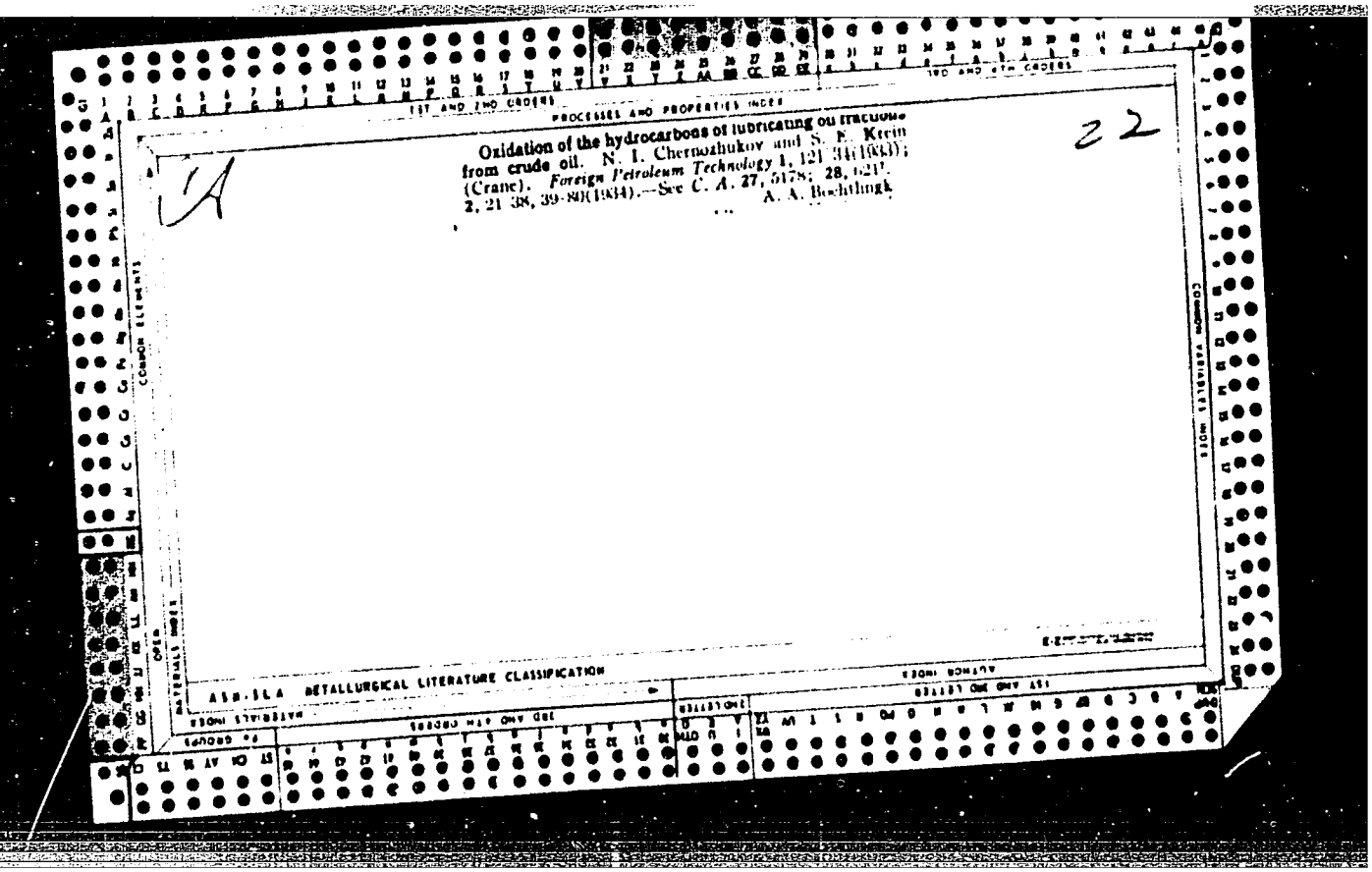
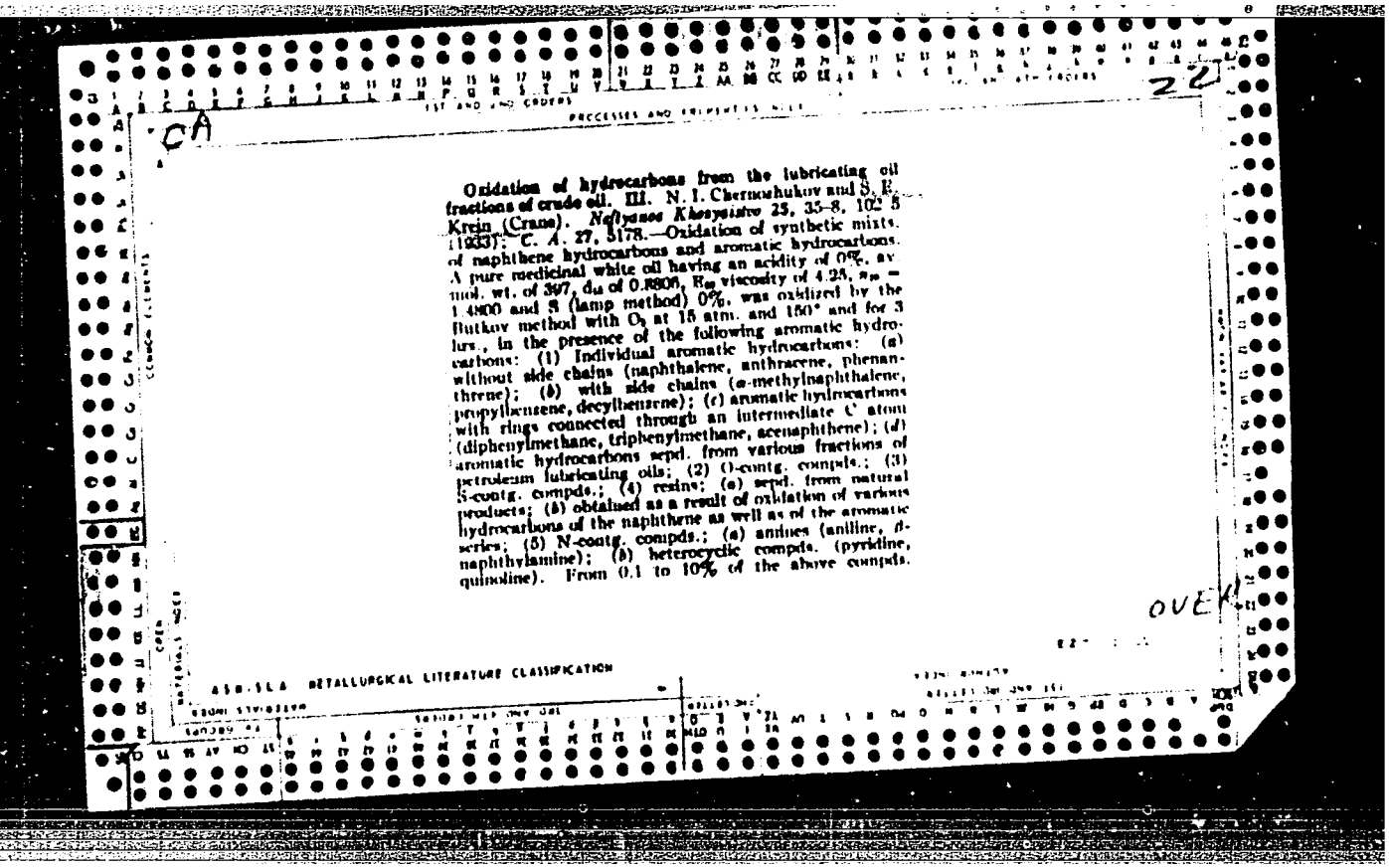


B-1-2

Oxidation of hydrocarbons from the lubricating oil fractions of crude oil. I, II. N. I. Tscherno-zemskov and S. E. Krein (Neft. Choz., 1932, 24, 242—250, 355—360).—Simple cyclic compounds are little affected by O_2 under 15 atm.; $C_{10}H_8$ and Ph_2 are particularly stable. Stability is less with mols. containing CH_2 or contracting chains, or with as-mols. Resin formation is > acid formation; the latter increases with increase in length of side-chains. The oxidisability of naphthenic hydrocarbons increases with increase in mol. wt. Side-chains lower stability and cause ring-fission. The stability of naphthenes is increased by the presence of small amounts of aromatic compounds. Ch. Abs.





CA

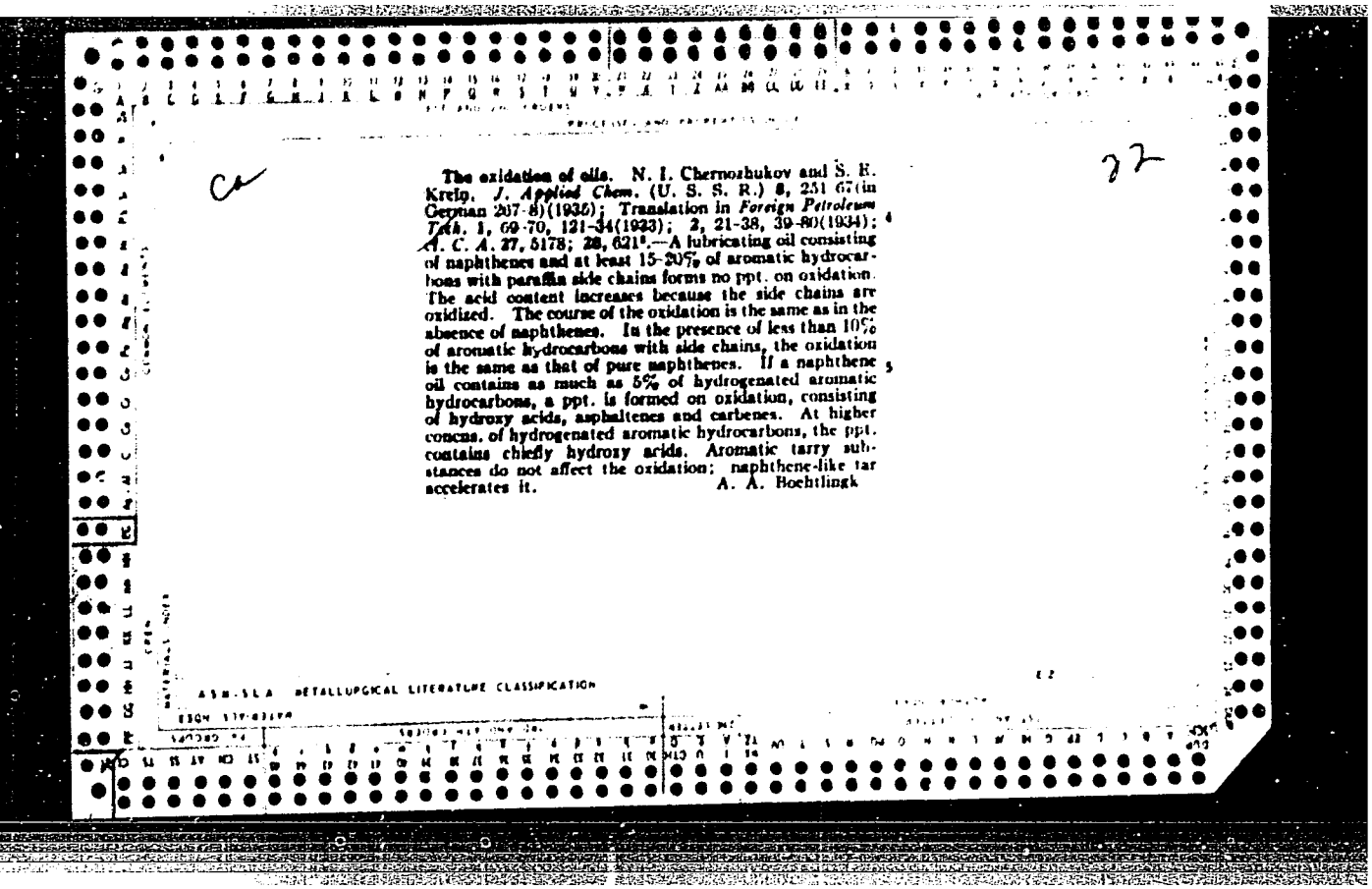
Oxidation of hydrocarbons from the lubricating oil fractions of crude oil. III. N. I. Chernozhukov and S. E. Krein (Crane). *Neftyanoe Khozyaistvo* 25, 35–8, 102–5 (1933); C. A. 27, 5178.—Oxidation of synthetic mixts. of naphthene hydrocarbons and aromatic hydrocarbons. A pure medicinal white oil having an acidity of 0%, av. mol. wt. of 307, d_{20} of 0.8806, E_{20} viscosity of 4.25, n_D = 1.4800 and S (lamp method) 0%, was oxidized by the Butkov method with O_2 at 15 atm. and 150° and for 3 hrs., in the presence of the following aromatic hydrocarbons: (1) Individual aromatic hydrocarbons: (a) without side chains (naphthalene, anthracene, phenanthrene); (b) with side chains (α-methylnaphthalene, propylbenzene, decylbenzene); (c) aromatic hydrocarbons with rings connected through an intermediate C atom (diphenylmethane, triphenylmethane, acenaphthene); (d) aromatic hydrocarbons sepd. from various fractions of petroleum lubricating oils; (2) O-contg. compds.; (3) S-contg. compds.; (4) resins; (5) sepd. from natural products; (6) obtained as a result of oxidation of various hydrocarbons of the naphthene as well as of the aromatic series; (7) N-contg. compds.; (a) anilines (aniline, β-naphthylamine); (b) heterocyclic compds. (pyridine, quinoline). From 0.1 to 10% of the above compds.

OVER

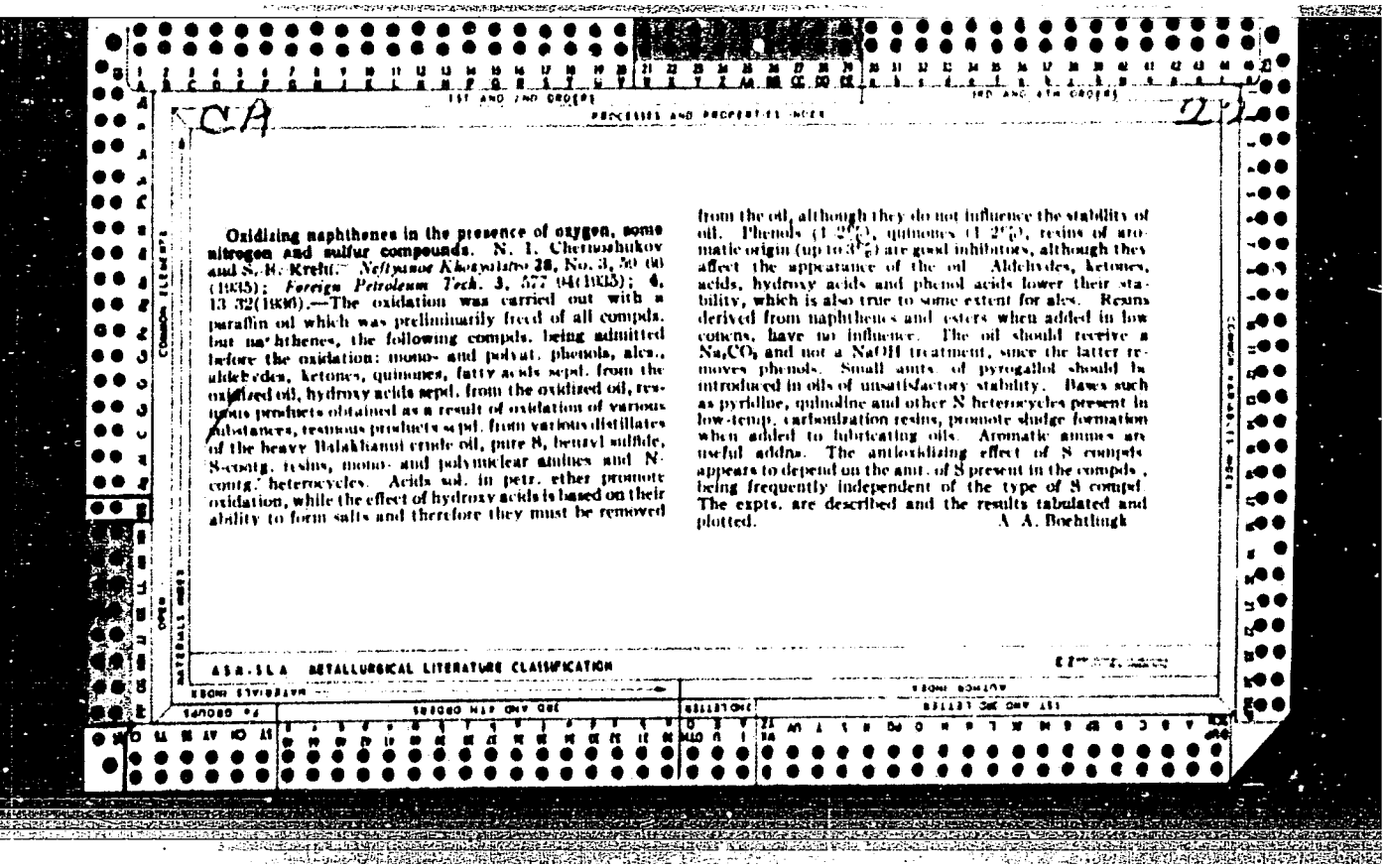
A58-51A METALLURGICAL LITERATURE CLASSIFICATION

were introduced. The expts. are described in detail and the following conclusions are made. (1) The oxidation stability of naphthene hydrocarbons is lowered in the presence of aromatic compds. without side chains whereby the latter are consumed in the course of oxidation. (2) The lowering of the oxidizability of the naphthenes does not increase in direct proportion to the concn. of the aromatic compds. The presence of more than 5% of aromatic compds. is of no practical effect. (3) Aromatic hydrocarbons without side chains when present in soln. in naphthenes act in the presence of O_2 quite differently than if present as individuals. Naphthenes induce the oxidation of aromatic compds. (4) In a mixt. with naphthenes the aromatic compds. are oxidized more rapidly than the naphthene hydrocarbons. (5) The antioxidation effect of aromatic compds. increases with increase in the no. of rings. (6) Aromatic compds. contg. a trivalent C are very effective antioxidants. (7) Hydrocarbons of the acenaphthene and diphenylmethane type are less effective. (8) Aromatic compds. having long (satd.) side chains of normal structure and in low concns. practically do not improve the antioxidizing properties of naphthenes, and even increase the tendency of naphthenes to oxidize. (9) The products of oxidation of aromatic hydrocarbons are of the type of phenols and condensation products which are more active as anti-oxidizers and thus retard the process of oxidation.

A. A. Ilochtlingk



The oxidation of oils. N. I. Chernozhukov and S. E. Kreip. *J. Applied Chem.* (U. S. S. R.) **8**, 251-67 (in German 267-8)(1935); Translation in *Foreign Petroleum Tech.* **1**, 69-70, 121-34(1933); **2**, 21-38, 39-80(1934); *C. A.* **27**, 5178; **28**, 621⁸.—A lubricating oil consisting of naphthenes and at least 15-20% of aromatic hydrocarbons with paraffin side chains forms no ppt. on oxidation. The acid content increases because the side chains are oxidized. The course of the oxidation is the same as in the absence of naphthenes. In the presence of less than 10% of aromatic hydrocarbons with side chains, the oxidation is the same as that of pure naphthenes. If a naphthene oil contains as much as 5% of hydrogenated aromatic hydrocarbons, a ppt. is formed on oxidation, consisting of hydroxy acids, asphaltenes and carbenes. At higher concns. of hydrogenated aromatic hydrocarbons, the ppt. contains chiefly hydroxy acids. Aromatic tarry substances do not affect the oxidation; naphthene-like tar accelerates it. A. A. Boehtlingk



CA

Oxidizing naphthenes in the presence of oxygen, some nitrogen and sulfur compounds. N. I. Chernushkov and S. R. Kreft.—*Neftyanoe Khozyaistvo* **16**, No. 3, 50-60 (1935); *Foreign Petroleum Tech.* **3**, 577-94(1935); **4**, 13-32(1936).—The oxidation was carried out with a paraffin oil which was preliminarily freed of all compds. but naphthenes, the following compds. being admitted before the oxidation: mono- and polynat. phenols, alcs., aldehydes, ketones, quinones, fatty acids sepd. from the oxidized oil, hydroxy acids sepd. from the oxidized oil, resinous products obtained as a result of oxidation of various substances, resinous products sepd. from various distillates of the heavy Balakhani crude oil, pure S, benzyl sulfide, S-contg. resins, mono- and polynuclear anilines and N-contg. heterocycles. Acids sol. in petr. ether promote oxidation, while the effect of hydroxy acids is based on their ability to form salts and therefore they must be removed from the oil, although they do not influence the stability of oil. Phenols (1.2%), quinones (1.2%), resins of aromatic origin (up to 3%) are good inhibitors, although they affect the appearance of the oil. Aldehydes, ketones, acids, hydroxy acids and phenol acids lower their stability, which is also true to some extent for alcs. Resins derived from naphthenes and esters when added in low concns. have no influence. The oil should receive a Na_2CO_3 and not a NaOH treatment, since the latter removes phenols. Small amts. of pyrogallol should be introduced in oils of unsatisfactory stability. Bases such as pyridine, quinoline and other N heterocycles present in low-temp. carbonization resins, promote sludge formation when added to lubricating oils. Aromatic amines are useful addns. The antioxidizing effect of S compds. appears to depend on the amt. of S present in the compds., being frequently independent of the type of S compd. The expts. are described and the results tabulated and plotted.

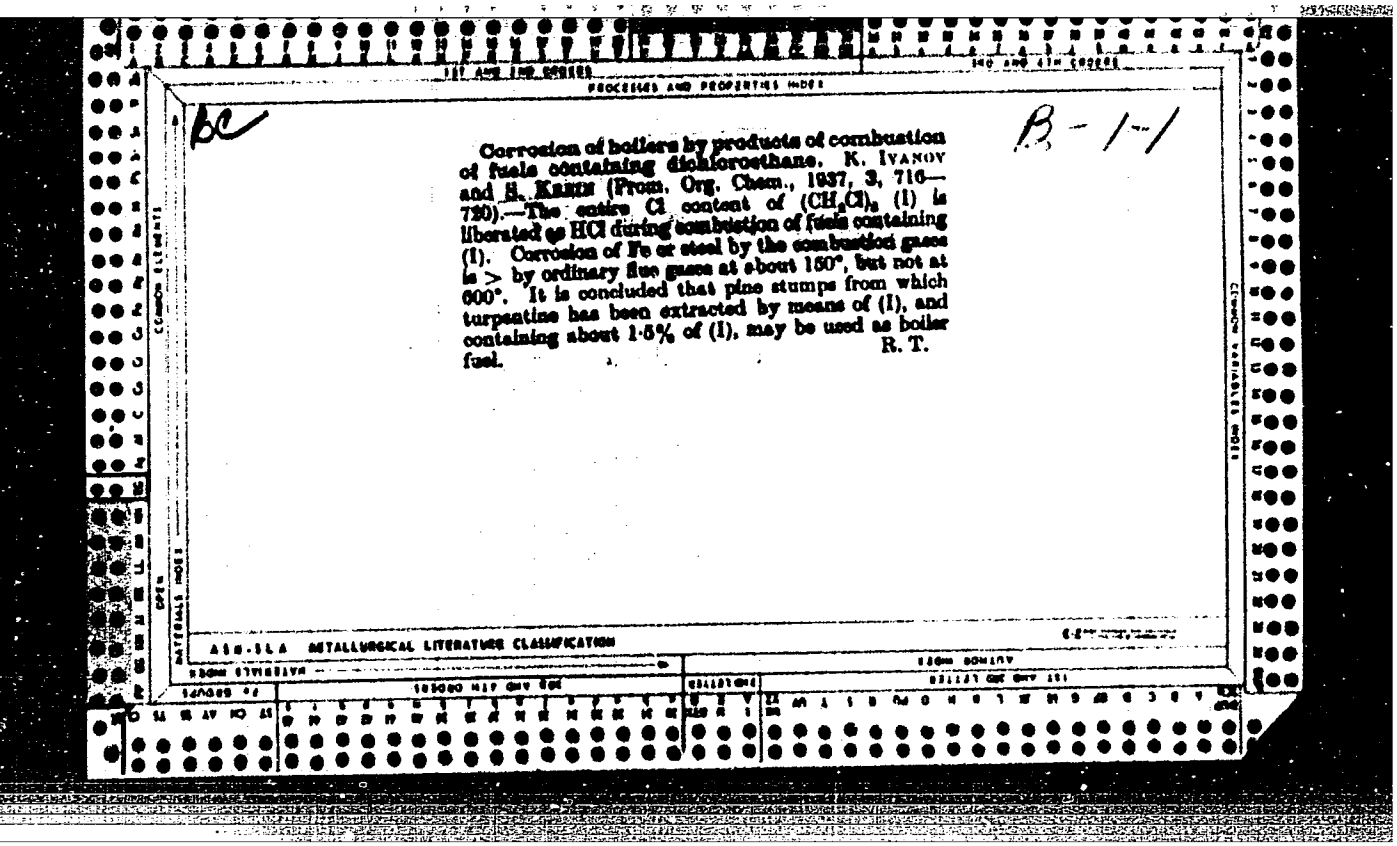
A. A. Boehtlingk

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

KREYN, S. E.

"Oxidizability of 'Mineral Oils'" (Okislyayemost "Mineralnykh Masel"), by N. I. Chernozhukov and S. E. Kreyn, ONTI, Aznefteizdat (United Scientific and Technical Publishing Houses), Azerbaydzhan Petroleum Publishing Office, 1936

XI



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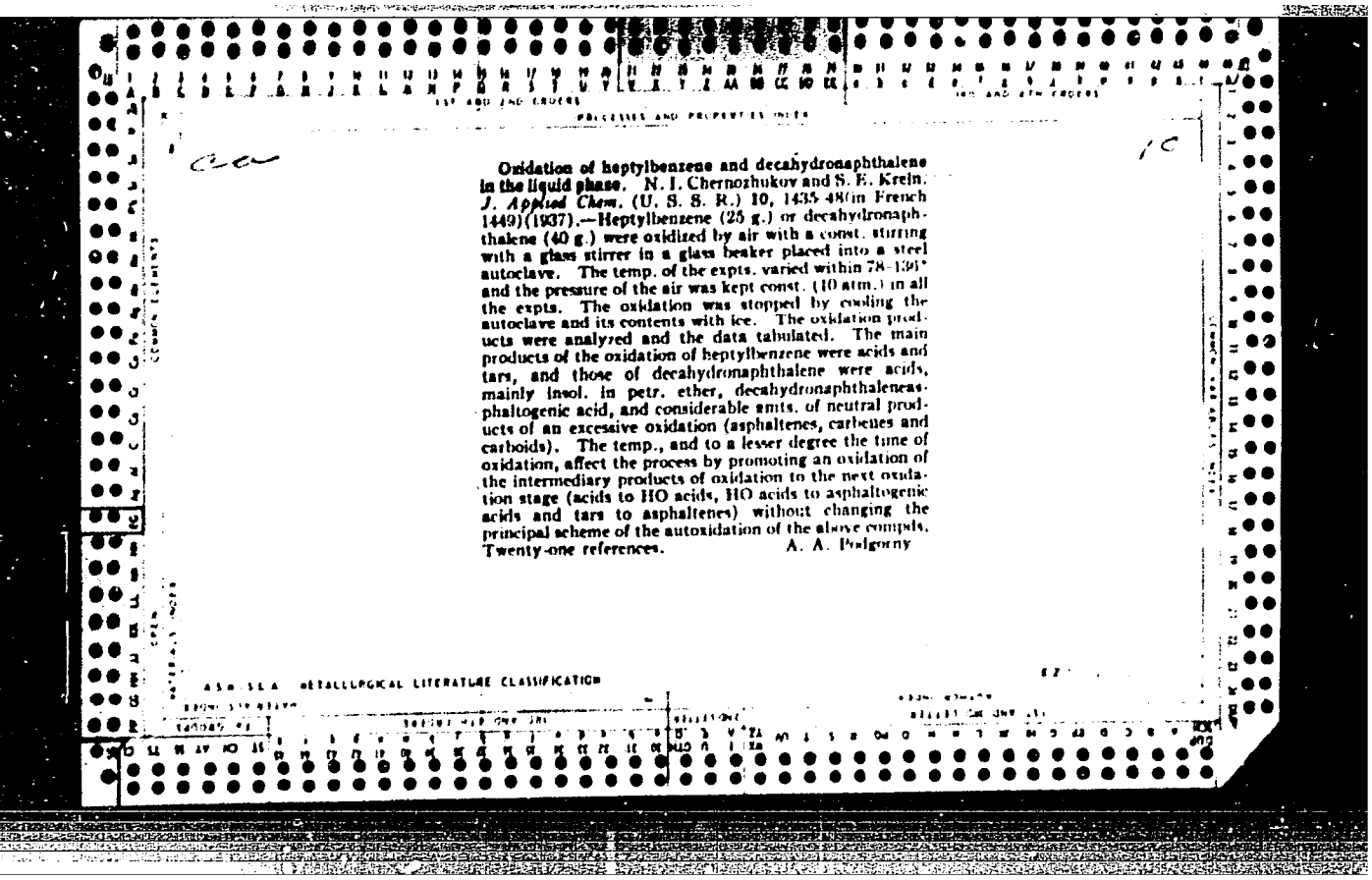
B-1-1

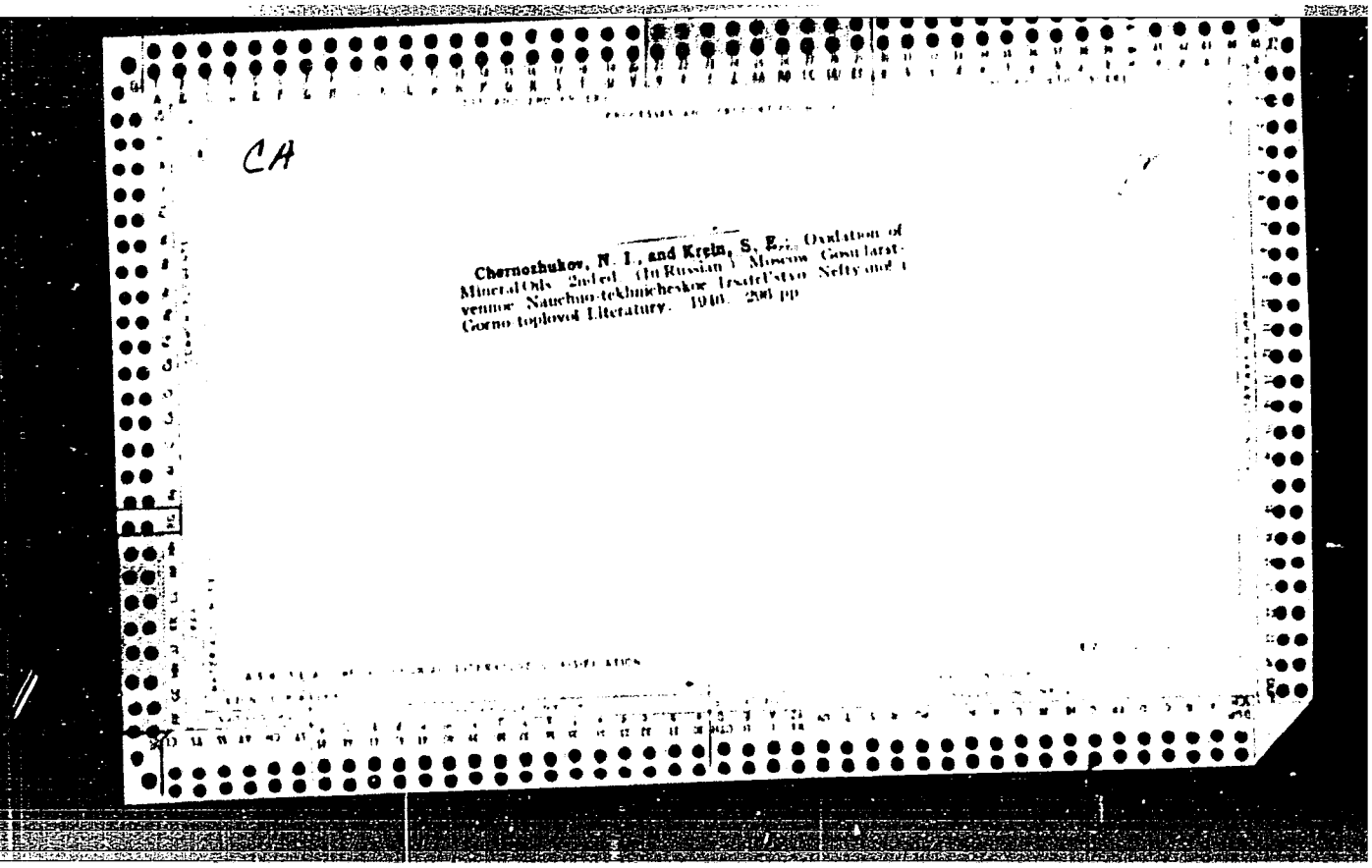
Corrosion of boilers by products of combustion of fuels containing dichloroethane. K. IVANOV and H. KAMM (Prom. Org. Chem., 1937, 3, 716—720).—The entire Cl content of $(CH_2Cl)_2$ (I) is liberated as HCl during combustion of fuels containing (I). Corrosion of Fe or steel by the combustion gases is > by ordinary flue gases at about 150°, but not at 600°. It is concluded that pine stumps from which turpentine has been extracted by means of (I), and containing about 1·5% of (I), may be used as boiler fuel.

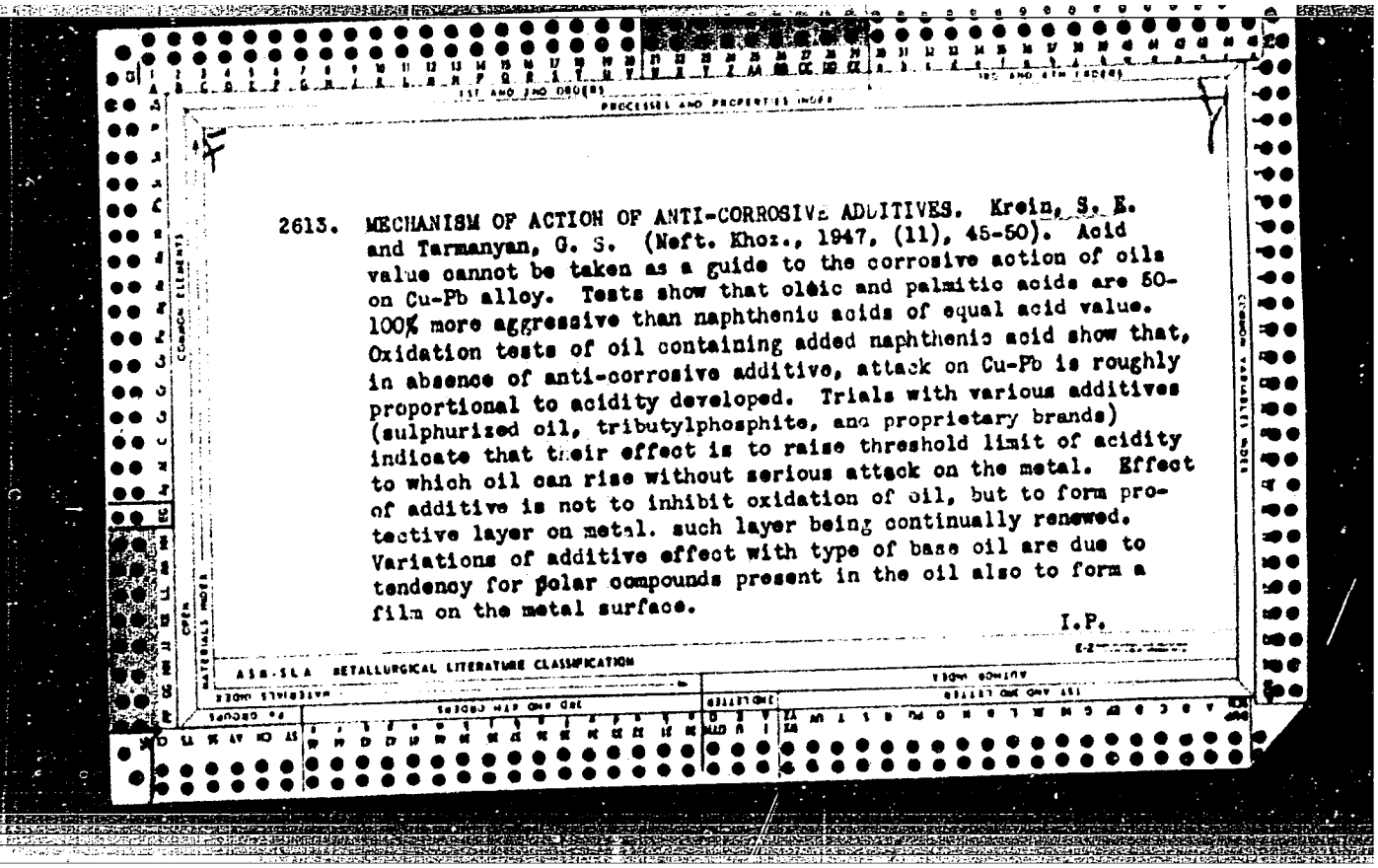
R. T.

A 38-11 A METALLURGICAL LITERATURE CLASSIFICATION



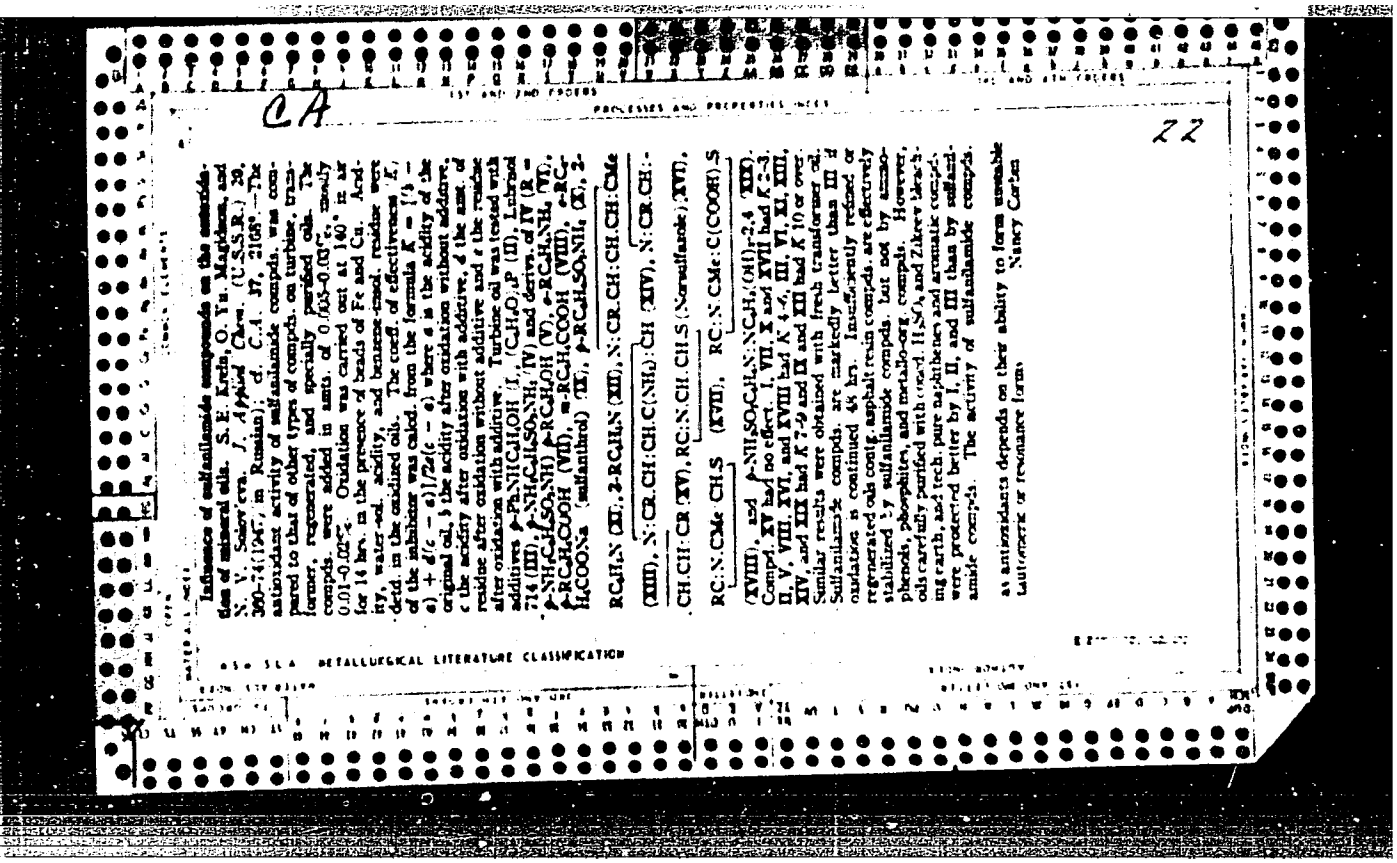
Oxidation of heptylbenzene and decahydronaphthalene in the liquid phase. N. I. Chernozhukov and S. E. Krein. *J. Applied Chem.* (U. S. S. R.) 10, 1435-48(in French 1449)(1937).—Heptylbenzene (25 g.) or decahydronaphthalene (40 g.) were oxidized by air with a const. stirring with a glass stirrer in a glass beaker placed into a steel autoclave. The temp. of the expts. varied within 78–139° and the pressure of the air was kept const. (10 atm.) in all the expts. The oxidation was stopped by cooling the autoclave and its contents with ice. The oxidation products were analyzed and the data tabulated. The main products of the oxidation of heptylbenzene were acids and tars, and those of decahydronaphthalene were acids, mainly insol. in petr. ether, decahydronaphthaleneasphaltogenic acid, and considerable amts. of neutral products of an excessive oxidation (asphaltenes, carbenes and carboids). The temp., and to a lesser degree the time of oxidation, affect the process by promoting an oxidation of the intermediary products of oxidation to the next oxidation stage (acids to HO acids, HO acids to asphaltogenic acids and tars to asphaltenes) without changing the principal scheme of the autoxidation of the above compds. Twenty-one references. A. A. Polgorny





2613. MECHANISM OF ACTION OF ANTI-CORROSIVE ADDITIVES. Krein, S. E. and Tarmanyan, G. S. (Neft. Khoz., 1947, (11), 45-50). Acid value cannot be taken as a guide to the corrosive action of oils on Cu-Pb alloy. Tests show that oleic and palmitic acids are 50-100% more aggressive than naphthenic acids of equal acid value. Oxidation tests of oil containing added naphthenic acid show that, in absence of anti-corrosive additive, attack on Cu-Pb is roughly proportional to acidity developed. Trials with various additives (sulphurized oil, tributylphosphite, and proprietary brands) indicate that their effect is to raise threshold limit of acidity to which oil can rise without serious attack on the metal. Effect of additive is not to inhibit oxidation of oil, but to form protective layer on metal, such layer being continually renewed. Variations of additive effect with type of base oil are due to tendency for polar compounds present in the oil also to form a film on the metal surface.

I.P.



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Influence of sulfanilamide compounds on the antioxidation of mineral oils. S. E. Krein, O. Ya. Magidson, and N. V. Solov'eva. *J. Applied Chem.* (U.S.S.R.) 20, 360-74(1947; in Russian); cf. *C.A.* 37, 2168⁹. The antioxidant activity of sulfanilamide compds. was compared to that of other types of compds. on turbine, transformer, regenerated, and specially purified oils. The compds. were added in amts. of 0.003-0.03% to the oils. Oxidation was carried out at 140° in air for 14 hrs. in the presence of beads of Fe and Cu. Acidity, water-sol. acidity, and bauxite-treat. residue were detd. in the oxidized oils. The coeff. of effectiveness (*K*) of the inhibitor was calcd. from the formula $K = (b_0 - b)/2(c - c_0)$ where c_0 is the acidity of the original oil, b the acidity after oxidation without additive, c the acidity after oxidation with additive, d the amt. of residue after oxidation without additive and e the residue after oxidation with additive. Turbine oil was treated with additives *p*-$H_2NC_6H_4CH(OH)CH_2NH_2$ (I), $(C_2H_5O)_2P(O)H$, Ionol 714 (III), *p*-$NH_2C_6H_4SO_2NH_2$ (IV) and derivs. of IV (R-*p*-$NH_2C_6H_4SO_2NH$) *p*-RC_6H_4OH (V), *o*-$RC_6H_4NH_2$ (VI), *p*-RC_6H_4COOH (VII), *m*-RC_6H_4COOH (VIII), *p*-RC_6H_4COONa (sulfanilurol) (IX), *p*-$RC_6H_4SO_2NH_2$ (X), 2-$RC_6H_4N(CH_3)_2$, 2-RC_6H_4N (XII), $N{:}CR{:}CH{:}CH{:}CMe{:}CH{:}CH{:}CR{:}N$ (XIII), $N{:}CR{:}CH{:}C(NH_2){:}CH{:}CH{:}N{:}CR{:}CH{:}$ (XIV), $N{:}CH{:}CR{:}N$ (XV), $RC{:}N{:}CH{:}CH{:}S$ (Norsulfazole) (XVI), $RC{:}N{:}CMe{:}CH{:}S$ (XVII), $RC{:}N{:}CMe{:}C(COOH){:}S$ (XVIII), and *p*-$NH_2SO_2C_6H_4N{:}NC_6H_4(OH)$-2,4 (XIX). Compd. XV had no effect. I, VII, X and XVII had K 2-3. II, V, VIII, XVI, and XVIII had K 4-6. III, VI, XI, XIII, XIV, and XIX had K 7-9 and IX and XII had K 10 or over. Similar results were obtained with fresh transformer oil. Sulfanilamide compds. are markedly better than III in oxidation is continued 48 hrs. Insufficiently refined or regenerated oils contg. asphaltic resin compds. are effectively stabilized by sulfanilamide compds. but not by amorphenols, phosphites, and metallo-org. compds. However, oils carefully purified with concd. H_2SO_4 and Zikeev bleaching earth, and tech. pure naphthenic and aromatic compds. were protected better by I, II, and III than by sulfanilamide compds. The activity of sulfanilamide compds. as antioxidants depends on their ability to form unstable tautomeric or resonance forms.

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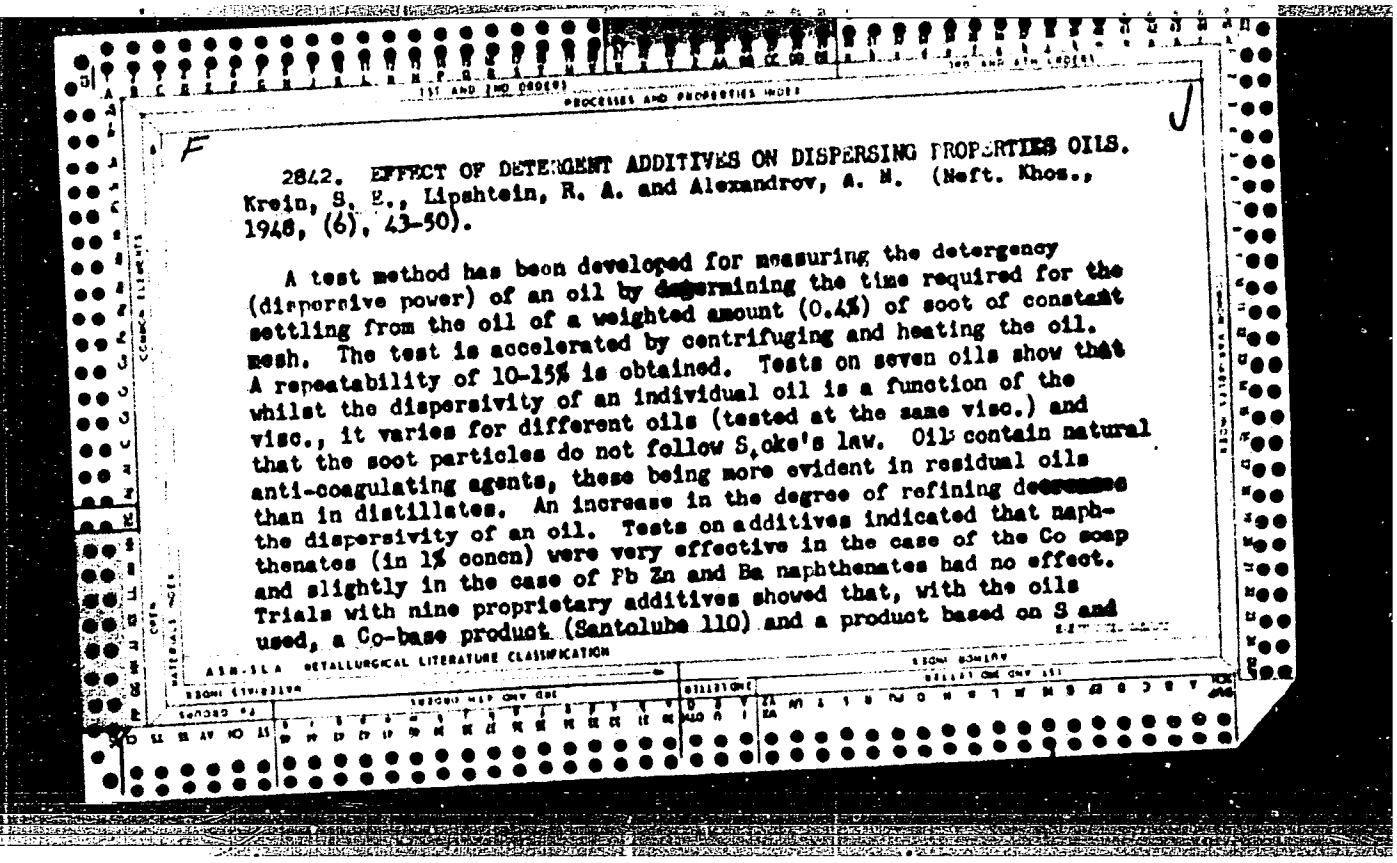
U.S.S.R. METALLURGICAL LITERATURE CLASSIFICATION



2842. EFFECT OF DETERGENT ADDITIVES ON DISPERSING PROPERTIES OILS. Krein, S. E., Lipshtein, R. A. and Alexandrov, A. N. (Neft. Khos., 1948, (6), 43-50).

A test method has been developed for measuring the detergency (dispersive power) of an oil by determining the time required for the settling from the oil of a weighted amount (0.4%) of soot of constant mesh. The test is accelerated by centrifuging and heating the oil. A repeatability of 10-15% is obtained. Tests on seven oils show that whilst the dispersivity of an individual oil is a function of the visc., it varies for different oils (tested at the same visc.) and that the soot particles do not follow Stoke's law. Oils contain natural anti-coagulating agents, these being more evident in residual oils than in distillates. An increase in the degree of refining decreases the dispersivity of an oil. Tests on additives indicated that naphthenates (in 1% concn) were very effective in the case of the Co soap and slightly in the case of Pb Zn and Ba naphthenates had no effect. Trials with nine proprietary additives showed that, with the oils used, a Co-base product (Santolube 110) and a product based on S and

P compounds of Zn (Lubrizol 738) were the most effective. The efficacy of additives decreased with increasing temperature. Susceptibility of various oils differs to such an extent that an additive may increase the dispersivity of one oil whilst lowering that of another.

KREYN, S. E.

"Additives Improving the Quality of Oils" (Prisadki, Uluchshayushchiye Ekspluatatsionnyye Svoystva Masel), S. E. Kreyn and R. A. Lipshteyn, Gostoptekhizdat, Moscow/Leningrad, 1949, 68 pages, 3 rubles 25 kopeks.

This Handbook was compiled by the Office of Technical Information.

SO: Uspekhi Khimii, Vol 18, #6, 1949; Vol 19, #1, 1950 (W-10083)

KREYN, S. E. and BOROVAYA, M. S.

"Lubricating Oils for Automobile Engines," pages 154-156 of the monograph, "Investigation and Use of Petroleum Products," edited by N. G. Puchkov, Gostoptekhizdat, Moscow-Leningrad, 1950

Translation D 399729

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826420

KREYN, S. E.

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Khimiya Mineral'nykh Masel (The Chemistry of Mineral Oils, by) N. I. Chernozhukov, S. E. Kreyn (i) B. V. Losikov. Moskva, Gostoptekhizdat, 1951.
307 p. Illus., Diagrs., Tables.
Bibliographical Footnotes.

KREYN, S E

Smazochnoye maslo i dvigatoli (lubricating oil and the engine, by) S. E. Kreyn, Yu. S. Zaslavskiy, N. P. Voinov. Moskva, Gostoptekhizdat, 1952.

198 P. diagrs.

KREYN, S. Ye., BROMBERG, V. Z. (ENGR.), NIKHEL'SON, A. Ye., (ENGR.)

Oils and Fats - Analysis

Properties of oils at low temperatures for the electric power industry. Elek. sta. 23 No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952, UNCL.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Chernozhukov, N.I. Kreyn, S.E. Losikov, B.B.	"Chemistry of Mineral Oils" (chemical manual)	Moscow Petroleum Institute imeni Acad I.M. Gubkin

SO: W-30604, 7 July 1954

KREYN, S.E.

CHERNOZHUKOV, Nikolay Ivanovich; KREYN, Serafin Effaimovich, L'VOVA, L.A., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskiy redaktor

[Oxidation of mineral oils] Okisliaemost' mineral'nykh masel. 3-e izd., perer. Moskva, Gos. nauchno-tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1955. 371 p. (MLRA 8:7)
(Oxidation) (Mineral oils)

USSR/Chemical Technology. Chemical Products and Their Application -- Treatment of natural gases and petroleum. Motor fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5588

Author: Kreyn, S. E., Lipshteyn, R. A.

Institution: None

Title: Procedure for Determination of the Oxidability of Oils in a Thin Layer at High Temperature

Original Publication: Sb. Metody issledovaniya neftey i nefteproduktov. M., Gostoptekhizdat, 1955, 174-183

Abstract: A laboratory method has been developed for determination of the stability of oil to oxidative condensation under conditions approximating those that occur within the zone of the piston rings of internal combustion engines. A 1 gram sample of oil, in the form of a thin layer (0.4 mm), in a flat-bottom, hermetically closed, aluminum dish, is oxidized for 3 hours with a current of air (50 ml per minute), In

Card 1/2

USSR/Chemical Technology. Chemical Products and Their Application -- Treatment of natural gases and petroleum. Motor fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5588

Abstract: the residue thus obtained are determined: oil and neutral tars, hydroxy acids and asphaltenes, carbenes and carboids. The apparatus can be used for the analysis of volatile oxidation products and also for the determination of the degree of oxidation on the basis of oxygen absorption. By means of the method that has been worked out an investigation was made of the stability to oxidative condensation of MK oil from select Surakhanskaya petroleum, and also of naphthenes (N) and aromatic hydrocarbons (AH) isolated from this oil on silica gel. It is shown that on oxidation in bulk as well as on oxidation in a thin layer the AH are considerably more stable than N, and that stability of the latter is greatly increased on addition to them of a definite amount of AH. The stability of AH is also greater than that of the oil from which they were isolated. On oxidation of N there are formed only 4.6% of asphaltenes and hydroxy acids, whereas 20% are formed on oxidation of AH. Rate of oxidation of the oil is inversely proportional to the depth of its layer. By means of experiments conducted in an atmosphere of nitrogen it is shown a thermal decomposition of oil does not take place at 250°.

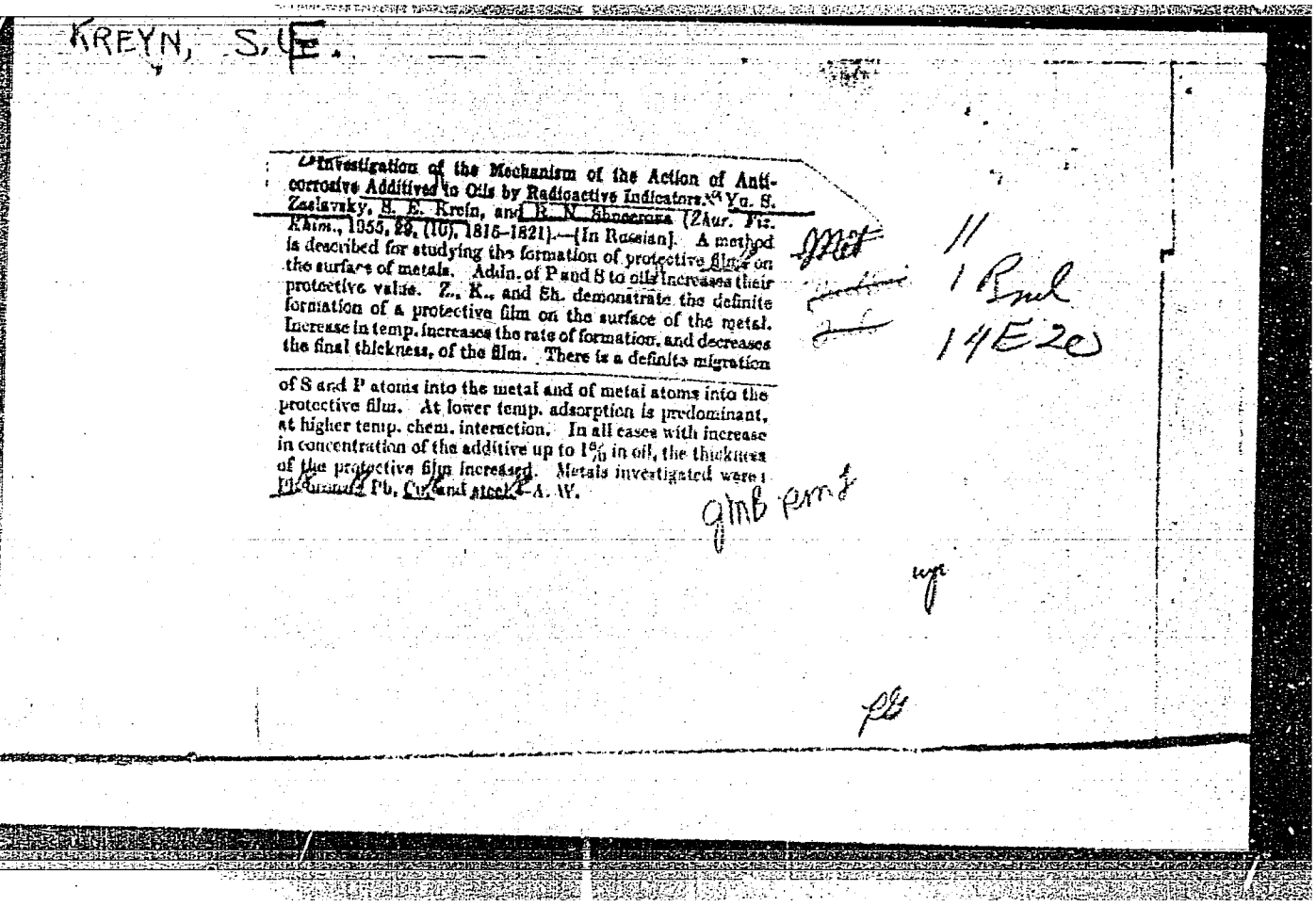
Card 2/2

KREYN, S. Ye.

V 2258* Investigation of Action Mechanism of Anti-Corrosion Additions to Oils by Using Radio-Active Indicators. Issledovanie mekhanizma deistviia antikorrozionnykh prisadok k maslam metodom radioaktivnykh indikatorov. (Russian.) MN Iu. S. Zaslavskii, S. E. Krein, and B. N. Shmeleva. Zhurnal fizicheskoi khimii, v. 27, no. 10, Oct. 1953, p. 1615-1621.

Investigation of anti-corrosion oil-film formation on metal surfaces by additions of radioactive S and P. Relationship between the protecting film and temperature of the oil. Discusses the complex problem of film formation and the diffusion of S in metal and oil. Graphs. 2 ref.

(2) RML



KREYN, S. E.

"Investigation of the Mechanism of the Action of Anti-corrosive Additives to Oils by Radioactive Indicators," Yu. S. Zaslavsky, S. E. Kreyn, and R. N. Shnoerova (Zhur. Fiz. Khim., 1955, 29, (10), 1816-1821).—(In Russian). A method is described for studying the formation of protective films on the surface of metals. Addn. of P and S to oils increases their protective value. Z., K., and Sh. demonstrate the definite formation of a protective film on the surface of the metal. Increase in temp. increases the rate of formation, and decreases the final thickness, of the film. There is a definite migration of S and P atoms into the metal and of metal atoms into the protective film. At lower temp. adsorption is predominant, at higher temp. chem. interaction. In all cases with increase in concentration of the additive up to 1% in oil, the thickness of the protective film increased. Metals investigated were: Fe, Cu, and steel. A. W.

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AID P - 3826

Subject : USSR/Chemistry

Card 1/1 Pub. 78 - 14/25

Authors : Kreyn, S. E. and G. S. Tarmanyan

Title : Influence of sulphur compounds of various composition on the tendency to corrode of mineral oils

Periodical : Neft. khoz., v. 33, #11, 71-76, N 1955

Abstract : In tabular form, a list is given of sulphur compounds, their characteristics and their varied corrosive influence on mineral motor oils as tested on lead-copper alloy plates. Tables, charts.

Institution : I. N. Tits and A. Ya. Levina, Moscow State University

Submitted : No date

VINOGRADOV, G.V.; KUSAKOV, M.M.; BEZBORODKO, M.D.; PAVLOVSKAYA, N.T.; ZELENSKIY, V.D.; KREYN, S.E.; BOROVAYA, M.S.

Wear-preventive properties of petroleum oils. Khim.i tekh.topl. no.1:61-3 of cover Ja '56. (MLRA 9:7)
(Petroleum)

KREYN, S.E. Kreyn, S.E.

1

Fuels

661. Chemical and electrical stability of oils. S. E. Kreyn *et al.* *Khim. i. Tekh. Topliva*, 1952, (2), 60-5.—Effects of oxidn (120° C, 300 hr), with and without cat (Pb, Cu, Fe), steam, air, followed by chemical (acid val) and electrical tests on various lub oils and on naphthenic paraffinic (N-P) and aromatic (A) fractions separated therefrom by adsorption. Found that chemical and electrical stability differ, that N-P are more susceptible to oxidn, but the electrical properties of the oxidized fractions do not show very marked deterioration, whereas A, whilst more resistant chemically to oxidn, deteriorate very sharply as regards elec tests. Effect of oxidn products in causing deterioration in elec properties increases with decreasing mol. wt. of the oils. Fractions differ in response (as shown by elec tests) to cat, lub oils most susceptible to Cu, whilst N-P therefrom are most susceptible to Pb. Per se catalytic oxidn (by acid val) is not a reliable guide to ext of elec deterioration, since acidic products reacting with the metals to form soaps; such soaps also markedly worsen the elec properties.

V. Ilin

KREYN, S. Ye.

2146. USE OF LABELLED ATOMS IN THE STUDY OF THE ACTION OF ANTI-
CORROSIVE ADDITIVES IN OILS. Zaslavskii, Yu.S., Krein, S.E., Shneerova, R.N.
and Shor, G.I. (Khim. Tekhnol. Topliva (Chem. Technol. Fuel, Moscow), 1956,
(4), 37-49; abstr. in Chem. Abstr., 1956, vol. 50, 13420). In experiments
carried out by the GOST-5162-49 method, films deposited on lead, copper, lead
bronze, and steel III plates by lubricating oils of the type MK-22, containing
0.5% $ph_3P^{32}O_4$ (I) and 0.5% sulphonated (S35) oil were measured after 1, 5, 10,
15, 20, 25, 30, 40, 50, 60, 90, 120, 150, 180 min and afterwards every hour at
90, 110, 140, 170, 200, and 220° for a total of 10 hours at each temperature.
The weight of the film was calculated from the equation $X = mg/n$, where m
is the measured impulse/min for the tested plate, g the weight (mg) of the
deposited radioactive substance on the plate, n the average radioactivity of
the control plate determined every day. The sensitivity of the method was 10^{-7}-
10^{-8} g. For every temperature the weight of the film containing I rapidly
increased to a value characteristic for each metal, and then levelled off.
With an increase in temperature, the rate of film formation sharply increased;
however, the weight of the film decreased. Analogous results were obtained
with the sulphonated oils. Analysis of the plates showed that they contained
[illegible]; the depth of penetration for each metal was directly related to the
temperature, reaction time, and concentration of the additive. The penetration
was greatest (about 0.01 mg/sq.cm 140 μ deep after 8 hours at 140° with 1%
S^{35} in the oil) for lead bronze. The kinetics of film formation were also
followed by measuring the radioactivity of the oils (MT-16, MT-16p, [illegible])
induced by lead, cast iron, and steel plates containing about 0.001% [illegible]

Zaslavskii, Yu.S., Krein, S.E., Shneerova, R.N. and Shor...

after 30 hours at 110, 140, 170, 185, 200, and 220°. Maximum corrosion for each metal and each oil occurred at about 170°. The addition of inhibitors first decreased the corrosion but after the point corresponding to the maximum gain in weight of the protective film was reached, the intensity of the corrosion increased and the weight of the film decreased. From these results it is concluded that the principal effect of the additives in the oils consists of the formation of a protective film on the metal surface. Two competing processes occur simultaneously: (1) film formation between the additive and the metal and the increase in the thickness of the film caused by additional adsorption; (2) oxidation of oil which leads to the formation of acids, phenols, etc., and their salts, which gradually destroy the protective film.

C.A.

KULAKOVA, R.V., kandidat tekhnicheskikh nauk; KREYN, S.E., doktor tekhnicheskikh nauk.

Polar and neutral hydrocarbons of mineral oils. Vest.elektroprom.27 no.12:52-54 D '56. (MLRA 10:1)

1. Nauchno-issledovatel'skiy institut kabel'noy promyshlennosti, Ministerstvo elektropromyshlennosti.
(Hydrocarbons)

LOSIKOV, B.V., prof, red; KREYN, S.E. prof. red; FUKS, G.I., kand.khim.nauk; red.; LOSBYAKOVA, Ye.S., vedushchiy redaktor; MUKHINA, E.A., tekhn.red.

[Improvement in the quality and the use of lubricants; a collection of papers] Povyshenie kachestva i primenenie smazochnykh materialov; sbornik dokladov. Moskva, Gos.nauchno-tekhn.izd-vo neft.i gorno-toplivnoi lit-ry, 1957. 364 p. (MIRA 10:12)

1. Moskovskiy dom nauchno-tekhnicheskoy propagandy imeni F.E.Dzerzhinskogo.

(Lubrication and lubricants)

ZASLAVSKIY, Yu. S., KREYN, S. E., SHNEYEROVA, R. N. and SHOR, G. I.

"Radiochemical Investigation of the Action of Oil Additives," p. 85.

In book Study and Use of Petroleum Products, Moscow, Gosteptekhizdat, 1957, 213pp.

This collection of articles gives the results of the sci. res. work of the AU Sci. Res. Inst. for the Processing of Petroleum and Gas for the Production of Synthetic Liquid.

KREYN, S.E.; BOROVAYA, M.S.

Influence of chemical and fractional composition of oils on their viscosity-temperature characteristics. Khim. i tekh. topl. i masel no.9:11-20 S '57. (MLRA 10:11)
(Lubrication and lubricants) (Viscosity)

65-12-2/9

AUTHORS: Kreyn, S.E., Mitrofanov, M.G. and Puchkov, N.G.

TITLE: On the Choice of Oils of an Optimum Chemical Composition and Methods of Their Production (O podbore masel optimal'nogo khimicheskogo sostava i putyakh ikh proizvodstva)

PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1957, No.12, pp. 13-22 (USSR).

ABSTRACT: The importance of group-chemical composition of lubricating oils and not only their physico-chemical constants, for the evaluation of their performance characteristics is discussed and illustrated by some examples. On the basis of the data cited it is concluded that the production of oils of better performance characteristics is possible with the existing production methods. It is pointed out that at present the production of oils of low performance is caused by an incorrect approach to the evaluation of oil quality. On choosing oils, their quality is evaluated on the basis of their physico-chemical indices and not their chemical composition and results of tests on corresponding mechanisms in spite of the fact that the former do not determine the behaviour of oils under operating conditions. The most rational scheme for the investigation of lubricating oils and the choice of their optimum composition can be as follows: 1) an investigation of group-chemical

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65-12-2/9

On the Choice of Oils of an Optimum Chemical Composition and Methods of Their Production.

composition of the raw material and the determination of the available naphthene-paraffinic and aromatic components; 2) an investigation of physico-chemical and operating properties of the individual structural-group fraction of hydrocarbons in the pure state and mixed in various proportions under laboratory conditions and on modelling equipment of the ПЗВ type and similar; 3) on the basis of the results obtained, the choice of optimum compositions of the above fractions with and without additives should be made; 4) testing of the chosen composition of oils with and without additives on single-cylinder engines and the introduction of the necessary correction in the composition, and 5) the production under industrial conditions of experimental lots of oils of the chosen composition and their testing on single-cylinder and full-scale engines. There are 1 figure, 10 tables and 8 Slavic references.

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Card 2/2

Kreyn, S.E.

110-12-4/19

AUTHOR: Kulakova, R.V., Candidate of Technical Sciences, Kreyn, S.E. Doctor of Technical Sciences, and Zhuravleva, R.M., Engineer.

TITLE: An Investigation into the Decomposition of Oils, Individual Groups of Hydrocarbons and their Mixtures in an Electric Field. (Issledovaniye razlozheniya masel, otdel'nykh grupp uglevodorodov i ikh smesey v elektricheskom pole)

PERIODICAL: Vestnik Elektropromyshlennosti, 1957, Vol.28, No.12, pp. 11 - 15 (USSR).

ABSTRACT: The reliable operation of oil-impregnated and oil-filled cables is affected by the evolution of gas in the oil through ionisation. The article describes work with a "gassing" cell very similar to the old Pirelli cell; the inner electrode is a tungsten rod 2 mm diameter; and the outer electrode is tin foil on glass. Tests were made with atmospheres of air, hydrogen and nitrogen; the results are given in Fig.2. Nitrogen gave considerable gas evolution and air considerable absorption, whilst hydrogen was more stable. Accordingly, a hydrogen atmosphere was used in the subsequent work. After assessing the influence of experimental variables, a study was made of the gassing properties of low and high viscosity oils from both naphthenic and paraffinic crudes; the properties of the oils
Cardl/2 are given in Table 1. The more viscous oils did not evolve gas

An Investigation into the Decomposition of Oils, Individual Groups of Hydrocarbons and their Mixtures in an Electric Field.

but the low-viscosity oils were much more active. The curves given in Fig. 9 show how the degree of refinement of transformer oil influences the gas evolution. The results of gassing tests on naphthenic paraffinic fractions completely de-asphalted and freed of aromatics are given in Fig. 10; all were gas-evolving, but again the heavier oils were more stable. The effect of adding aromatic hydro-carbons in reducing the gas evolution of the fraction is shown by the data in Fig. 7. The oils were also analysed after exposure to ionisation, which was found to cause somewhat greater complication of the molecules. Because fractions from which the aromatics have been removed are more gas-evolving, it is concluded that the aromatics prevent gas evolution; further, that their addition reduces the tendency to gas-evolution. On exposure to ionisation, the dielectric properties of almost all the oils became worse. There are 10 figures, 2 tables and 12 references, 2 of which are Slavic.

ASSOCIATION: NII KP

SUBMITTED: December 20, 1956

AVAILABLE: Library of Congress

Card 2/2

ZASLAVSKIY, Yu.S., kand. tekhn. nauk; KREYN, S.E., doktor tekhn. nauk.

Radioactive isotopes in the oil industry. Priroda 46 no.8:35-44 Ag '57. (MLRA 10:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskustvennogo zhidkogo topliva, Moskva. (Petroleum industry) (Radioisotopes--Industrial applications)

KREYN, S.E.

21(8)

[illegible]
[illegible] 1958.

Trudy... [illegible] (Transactions of the All-Union Conference on the Use of Radioactive [illegible] and Radiation in the National Economy and Science; [illegible] Manufacturing) Moscow, Izd-vo AN SSSR, 1958. 256 p. 4,500 copies printed.

Sponsoring Agencies: USSR. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii, and Akademiya nauk SSSR.

Editorial Board of Set: V.I. Dikushin, Academician (Resp. Ed.), N.N. Shumilovskiy (Deputy Resp. Ed.), Yu. S. Zaslavskiy (Deputy Resp. Ed.), L.K. Tatochenko, B.I. Verkhovskiy, S.T. Nazarov, L.I. Petrenko, and N.O. Zelevinskaya (Secretary).

Ed. of Publishing House: P.N. Belyanin; Tech. Ed.: T.P. Poleneva.

PURPOSE: This book is intended for specialists in the field of machine and instrument manufacture who use radioactive isotopes in the study of materials and processes.

COVERAGE: This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the use of radioisotopes in the machine-and instrument-manufacturing industry. The individual papers discuss the applications of radioisotope techniques in the study of metals and alloys, problems of friction and lubrication, metal cutting, engine performance, and defects in metals. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording and measuring devices, quality control, flowmeters, level gauges, safety devices, radiation counters, etc. These papers represent contributions of various Soviet institutes and laboratories. They were published as Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science, April 4-12, 1957. No personalities are mentioned. References are given at the end of most of the papers.

(1)
(1)

KREYN, S. E., SOKOVAYA, M.S.

"Effect of the Chemical Composition of Petroleum Lubricating Oils on Their Properties"

Composition and Properties of the High Molecular Weight Fraction of Petroleum; Collection of Papers, Moscow, Izd-vo AN SSSR, 1958. 370pp. (Inta nefti) 2nd Collection of papers publ. by AU Conference, Jan 56, Moscow.

This paper is a study of petroleum oils obtained from various Baku crudes. Components were separated by adsorption. The distillates were refined by sulfuric acid and solvent processes. The effect of the composition and the hydrocarbon structures on the quality of lubricating oils was determined for several types of oils. The role of quantity and structure of aromatics, naphthene-aromatics, hydrocarbons, resins and sulfur compounds was studied in motor oils as a factor modifying the character of naphthenic-paraffinic hydro-carbons. The type of the crude and the prupose of the lubricating oil determine the refining processes and their extent. There are 23 tables and 9 references of which 5 are Soviet and 4 English.

KREYN, S. E.

"Chemical Composition and Wear-Resistance Properties of Petroleum Oils" p. 167

Composition and Properties of the High Molecular Weight Fraction of Petroleum; Collection of Papers, Moscow, Izd-vo AN SSSR, 1958. 370pp. (Inta nefti) 2nd Collection of papers publ. by AU Conference, Jan 56, Moscow.

Various types of NPF oils (naphthene-paraffin fractions) were studied on friction-test machines in order to establish their wear-resistance properties in relation to their chemical composition. Their wear-resistance properties depend on the amount of aromatic fractions (AF) which are sulfur bearing, in relation to the NPF of variable viscosity and oxidation stability. The chemical composition of oils and individual fractions determines their characteristic behavior in relation to metals. These characteristics vary throughout the entire range of products from distillates through oils to NPF fractions. The article gives 14 figures and 1 table. There are no references.

SOV/81-59-16-58531

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 414 (USSR)

AUTHORS: Kreyn, S.E., Borovaya, M.S.

TITLE: The Effect of the Chemical Composition of Petroleum Lubrication Oils on Their Properties

PERIODICAL: V sb.: Sostav i svoystva vysokomolekul. chasti nefti. Moscow, AN SSSR, 1958, pp 138-166

ABSTRACT: Investigation results are presented concerning the chemical composition, physical-chemical and operation properties (oxidation resistance, corrosion activity) of the following substances: distillates; oils obtained by selective and sulfuric acid purification from various types of petroleum; naphthene-paraffin fractions (NPF); aromatic hydrocarbons (AH) as well as asphaltic-resinous substances (ARS) obtained by adsorption separation of oils on silicagel. Besides that, NPF divided on activated coal into hydrocarbons which are poor ("naphthene") and which are rich ("paraffin") in hydrogen. The distillates of Baku oil differ essentially in their properties. The purification changes sharply their physical-chemical indices, but oils of medium viscosity obtained by sylfuric acid and selective purification retain their individuality. The chemical composition

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The Effect of the Chemical Composition of Petroleum Lubrication Oils on Their Properties

of the oils determines sufficientlyclearly their qualitative characteristics. The composite NPF of various motor oils are very similar in their physical-chemical properties and chemical composition. The NPF of oils from Emba and sulfurous petroleum differ somewhat in their properties and composition from the NPF of Baku oils. Compared to the composite NPF in "naphthene" fractions the pour point decreases sharply, the viscosity (η) and the density (d) increase, but in "paraffin" fractions the pour point and the molecular weight increase sharply, but η , d and $n^{20}D$ decrease. AH, depending on the depth of desorption from silicagel, differ significantly in the number of aromatic rings and physical-chemical indices. The NPF have a low antioxidation stability, a high corrosivity, an inclination to varnish formation, unsatisfactory detergent properties, and good viscosity-temperature characteristics. The character of the raw material has no essential effect on the stability of NPF separated from medium- and highly-viscous oils. AH are considerably more stable than NPF, and in the oxidation in a thin layer are characterized by a lower varnish-forming ability. With an increase in the number of rings in AH the acid number of the oxidized products decreases. Low-cyclic AH in low concentrations do not practically decrease the oxidizability of NPF, but polycyclic AH are strong antioxidants for NPF. Distillates strongly corrode Pb and lead bronze.

B. Englin.

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SOV/65-58-8-2/14

AUTHORS: Kreyn, S. E. and Makasheva, O. P.

TITLE: The Resistance of Petroleum and Synthetic Oils to Air Impact. (Ustoychivost' neftyanykh i sinteticheskikh masel k vozdushnomu udaru).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr.8. pp. 9 - 15. (USSR).

ABSTRACT: The nature and mechanism of the phenomena during air impact on the oil layer have not been investigated sufficiently. According to some calculations the pressure in the air pipe, when air is introduced under pressure of 200 atms, reaches an order of 1500 atms and a temperature around 600°C. During the investigations, the authors found that the balls made of glass wool and wetted with oil melted under these conditions. Experiments on the changes in the properties of oils during air impact (chemical composition, structure etc.) were carried out in a special apparatus. Two drops of the tested oil were placed on clean asbestos fibres, situated on the bottom of the apparatus and kept under a pressure of 200 - 205 atms. The properties of the oils could be defined by taking into account the changes in the asbestos fibre

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which burned when the resistance of the oil was too low. Results varied according to the type of oil used, and according to its viscosity (Table 1). When oils MK-22, MS-20, MS-14 and the lubricating oil 13 were tested, (having a viscosity above 14-15 cps, at 100°C, and a flash-point of above 200°C), practically no changes were observed, but oils with a viscosity of 5-8cps, a temperature of 100°C, and a flashpoint of 185-200oC (lubricating oil 6 and the machine oil SU) proved to be less resistant. Data on the resistance to air impact of various structural fractions of petroleum oils (Table 2), separated from oils with varying viscosities by chromatographic separation, shows that high viscosity oils, as well as the naphthenic-paraffinic and aromatic fractions separated therefrom, are equally resistant to air impact. Low viscosity oils (turbine, transformer oils etc.) and their separated fractions show the same degree of instability to air impact. The addition of anti-oxidants (parahydroxy-diphenylamine, ionol, phenothiazine), or some sulphur compounds, did not affect the unstable oils. Similar experiments were carried out on some synthetic products (esters based on pentaerythritol, triethanolamine,

The Resistance of Petroleum and Synthetic Oils to Air Impact.

trimethylethane and diethyleneglycol) and fractions of C_5 - C_{10} fatty acids. Results of these investigations are tabulated (Table 3), and show that esters of triethanolamine and trimethylethane are unstable to air impact. Esters of diethyleneglycol (flashpoint = 170°C) showed satisfactory resistance. When testing the effect of polymeric additives (polyisobutylene, polymethacrylates) on the viscosity-temperature properties, and on the resistance of the oils to air impact, it was found that polymethacrylates had less effect than polyisobutylene, but when polymethacrylates were added the viscosity temperature properties of the oils were improved. The same compounds were tested as additives for pentaerythritol and diethyleneglycol. Mineral oils showed better viscosity-temperature properties when sedimented with polymethacrylates. It was found that low concentration of the polymeric

additives did not affect the resistance of the oils, but at higher concentration (up to 25%) the resistance increases slightly. In the experimental work A. A. Yemel'yanova assisted. There are 4 Tables.

1. Oils--Test reults 2. Compressed air--Chemical effects
3. Pressure--Chemical effects

Card 4/4

[illegible], M. E., [illegible], K. K., [illegible], N. S., [illegible], [illegible] G., [illegible], V. V.

"Investigation of Motor Oil Stability and Methods of Its Evaluation."

Report submitted at the Fifth World Petroleum Congress, 30 May - 5 June 1959. New York.

15(5) PHASE I BOOK EXPLOITATION SOV/2866

Kreyn, Solomon Efraimovich, and Revekka Viktorovna Kulakova

Neftyanyye izolyatsionnyye masla (Petroleum Insulating Oils) Moscow, Gosenergoizdat, 1959. 143 p. 6,000 copies printed.

Ed.: B. V. Losikov; Tech. Ed.: N. I. Borunov.

PURPOSE: This booklet is intended for engineers and technicians engaged in the production and utilization of insulating oil.

COVERAGE: The booklet reviews the technology of insulating oil production and presents a comprehensive analysis of different types of insulating oil. Several methods of manufacturing insulating oils with dielectric and antioxidative properties are examined and discussed. Considerable attention is devoted to insulating oils with a low solidification point, and to oils used for impregnating and filling high-voltage cables. The effect of such additives as depressants and antioxidants, as well as additives to prevent the oil from emitting gas, is discussed. The chemical composition of insulating oils is analyzed and equipment used for production of insulating oil is shown. The

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authors thank Professor B. V. Losikov. There are 63 references: 47 Soviet, 13 English, and 3 German.

TABLE OF CONTENTS:

15(5) PHASE I BOOK EXPLOITATION SOV/1948

Chernozhukov, Nikolay Ivanovich, Solomon Efraimovich Kreyn, and Boris Vital'yevich Losikov

Khimiya mineral'nykh masel (Chemistry of Mineral Lubricating Oils) 2d ed., rev. Moscow, Gostoptekhizdat, 1959. 414 p. 4,000 copies printed.

Exec. Ed.: L.A. L'vova; Tech. Ed.: A.S. Polosina.

PURPOSE: This book is intended for engineers and scientific personnel engaged in lubricating oil chemistry and technology.

COVERAGE: This is an enlarged and revised edition of the original work of the same title published in 1951. It clarifies the basic problems relating to the nature of lubricating oils, the changes in lubricating oils under operating conditions, and the technology involved under these conditions. It also contains much experimental material on the chemical composition, inner structure, solubility, viscosity, lubricating properties, resistance to

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oxidation, scrubbing, dispersing, and corrosive properties of lubricating oils. No personalities are mentioned. Each chapter is accompanied by references.

TABLE OF CONTENTS:

KREYN, S.E.; GOL'DBERG, D.O.; AKIMOV, V.S.; YEVDOKIMOV, O.P.; ABRAMOVICH, S.Sh.

Additional means for increasing the output of high-quality lubricating oils. Khim.i tekh.topl.i masel 4 no.2:4-10 F '59. (MIRA 12:2)

(Lubrication and lubricants)

KREYN, S.E.; ARTEM'YEVA, O.A.; MITROFANOV, M.G.; MARTYNENKO, A.G.

Ways for improving the lubricating performance of residual oils.
Trudy GrozNII no.4:171-183 '59. (MIRA 12:9)
(Lubrication and lubricants)

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77542
SOV/65-60-2-2/15

AUTHORS: Kreyn, S. E., Kalaytan, Ye. N., Stupishin, Yu. V.

TITLE: Anastas'yevsk Crude Oil as a Raw Material for Production of MK-8-Type Lubricants

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, Nr 2, pp 6-11 (USSR)

ABSTRACT: The sulfur- and paraffin-free crude oil from the Anastas'yevsk deposit recently began to be used for the production of transformer-, MVP-, spindle AU-, and some other oils. The possibility of its use for production of MK-8-type lubricant was examined. Crude oils from only a few deposits are thus far used for this purpose, since the solid point, stability, distillation range, viscosity, and density of the lubricant must meet very strict specifications. The experiments, undertaken by M. G. Mitrofanov, et al., in the Scientific Research Institute of Groznyy (Groz. NII), failed to produce satisfactory MK-8 lubricant from Anastas'yevsk oils.

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Anastas'yevsk Crude Oil as a Raw Material for Production of MK-8-Type Lubricants

77542
SOV/65-60-2-2/15

The necessity of a high-degree purification was obvious. This was achieved in the Yaroslavl' and Gor'ki refineries, and by the authors, after trial experiments in which 6.4% to 50% H_2SO_4 solutions were used. The experimental data revealed that the distillates purified with 6 to 10% H_2SO_4 had density, aniline point, and viscosity not consistent with the specifications. The distillates purified with 50% H_2SO_4 had satisfactory density, aniline point, and viscosity; addition of 0.1% ionol improved their antioxidation properties. However, light fractions of MK-8 form Anastas'yevsk oil and those of trade specimens evaporate easily, and the viscosity of the residue increases at low-temperatures by 4 to 5 times. If, instead of a distillate whose boiling point ranges from 260 to 440° C, one selects a distillate with 45% of fractions boiling at 320-370° C, the viscosity of MK-8 improves essentially (Table 5). The MK-8, composed of a narrow range of fractions and tested in plants, proved to be of much higher quality than commercial MK-8 lubricant from crude oils of Baku. There are 5 tables; and 3 Soviet references.

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TABLE 5. PHYSICOCHEMICAL PROPERTIES OF EXPERIMENTAL OIL SAMPLES COMPOSED OF NARROW RANGE OF FRACTIONS FROM ANASTAS'YEVSK CRUDE OIL.

Physicochemical Characteristics	All-Union State Standard (GOST) 1957-53 MK-8 oil	Experimental Samples of Lubricants from Anastas'yevsk Crude Oil		
		Laboratory Optimum (Sample 1)	From Refinery Installation "Barmash" (Gor'ki) (Sample 2)	From Reactivating Installation (Gor'ki) (Sample 3)
Sample 1. Kinematic viscosity in centistokes:				
At 50° C	not below 8.3	5,6	5,8	6,1
At 20° C	not above 30,0	15,3	16,6	17,4
At -40° C before evaporation	(6000)—7000	2450	2100	2600
At -40° C after evaporation	18000—21000	3800	6300	4600
Sample 2. Kinematic viscosity at 50°C divided by the kinematic viscosity at 20°C (ratio)	not more than 60,0	48,4	45,2	42,7
Sample 3. Stability: Precipitate after oxidation, %	not more than 0,1	0,14	0,05	0,08
Acid number after oxidation in mg KOH per 1 g oil.				
Sample 4. Flash point in Closed Crucible, °C	not more than 0,35	0,33	0,34	0,34
Sample 5. Freezing Point, °C	not below 135	142	129	145
Sample 6 Density at 20°C	not above —55	—58	below —55	—64
Sample 7. Aniline Point, °C	not more than 0,885	0,885	0,883	0,880
Sample 8 Evaporation, %	not below 79	61,0	65,0	63,0
	22—24	23,0	37,9	23,0

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GOL'DBERG, D.O.; KREYN, S.E.; AKIMOV, V.S.; ABRAMOVICH, S. Sh.; YEVDOKIMOV, O.P.; FATKULLINA, N.S.; KULINICHEVA, M.A.

Relation between the physicochemical properties and performance characteristics of residual oils from sulfur-bearing crudes and the depth of phenol extraction. Trudy Bash NII NP no.3:69-81 '60. (MIRA 14:4)

(Lubrication and lubricants—Testing)
(Petroleum—Refining)

S/081/61/000/021/074/094
B138/B101

AUTHORS: Kreyn, S. E., Yevdokimov, O. P.

TITLE: Oils of optimum group chemical composition

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 405, abstract 21M112 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh, AN SSSR, v. 3, 1960, 356 - 365)

TEXT: On the basis of preliminary investigations which established the dependence of working properties on hydrocarbon composition, lubricating oils have been produced in commercial conditions from sulfur-free Karashukhuro-Surakhany and Zhirnovskiy crudes, and also from sulfurous Tuymazy crude. Samples of these oils were tested on motor and model stands (НАМИ(NAMI), ПЗВ (PZV) etc), in two-cylinder diesel engine 24-8.5/11, and also on a stand with an АШ-82ФН(ASh-82FN) cylinder. Commercial Mk-22 (MK-22), produced from selected Surakhany crudes, МС-22 (MS-22), from the Karachukhuro-Surakhany crude of the Groznyy refinery and МС-20 (MS-20), from the sulfurous Tuymazy crude of the Novoufimka refinery, were also tested for comparison. The results of analysis of hydrocarbon composition

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Oils of optimum group chemical...

are given, together with the qualitative characteristics of the oils under test. Preliminary evaluation of the anti-wear, detergent and anticorrosion properties of the oils shows that those produced from sulfur-free crude have better operational characteristics than MS-20 and are almost as good as MK-22. The oil from the Tuymazy crude has higher detergent and anti-corrosion properties. The superiority of the anti-wear, anti-corrosion and detergent properties of the experimental oil is very apparent when comparing oils produced from sulfur-free crudes. Trials with additives: Commercial ЦИАТИМ-339 (TsIATIM-339), МНИИП-22к (MNIIP-22k) and ВНИИ НП-360 (VNII NP-360)) show that the experimental oils have very good susceptibility to this kind of additives. [Abstracter's note: Complete translation.]

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KREYN, S.E.; KALAYTAN, Ye.H.; STUPISHIN, Ye.V.

Anastas'evskaya petroleum as a stock for producing the MK-8 type lubricating oils. Khim.i tekh.topl.i masel 5 no.2:6-11 F '60. (MIRA 13:6)

(Petroleum--Analysis)
(Lubrication and lubricants)

S/065/60/000/011/003/009
E030/E412

AUTHORS: Kreyn, S.E., Kalayman, Ye.N., Abramovich, S.Sh., Gol'berg, D.O., Stupishin, Yu.V. and Smirnova, N.I.

TITLE: Preparation of Low Pour Point Distillate Oils of Type MK-8 (MK-8) From Tuymazy Devonian Crudes

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.11, pp.11-14

TEXT: A method has been developed for obtaining high quality low pour point distillate lubricating oils of type MK-8 from Tuymazy Devonian crude and from Balakhany, Dossor and Anastas'yevka crudes. Previous methods for obtaining MC-8 (MS-8) and transformer oils from sulphurous Tuymazy Devonian crudes had used refining with phenol, followed by MEK/toluene or acetone/toluene extraction of paraffins, and by contacting with clay; they all failed on oxidation stability. The present method takes a very narrow cut (IBP and 7,12,28,32,47,54 and 64% boiling at 47,85,120,205,225,300, 330 and 350°C respectively), refines with phenol, and extracts the paraffins by chilling to -65°C with a mixture of ammonia and ethanol and uses no further contacting. Typical data for the oil are; density 0.835 gm/cc; flash point (closed) 158°C;

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E030/E412

Preparation of Low Pour Point Distillate Oils of Type MK-8 (MK-8) From Tuymazy Devonian Crudes

viscosity 6.5 centistokes at 50°C, sulphur content 0.37%. It satisfies specification ГОСТ 6547-33 (GOST 6547-33) with a pour point of -55°C. Even higher qualities may be obtained by further fractionation, putting the 305 to 355°C cut through a column with a 250 to 253°C base temperature and taking the 50 to 65% cut with a viscosity of 5.9 to 6.3 centistokes at 50°C. This oil is superior both to MK-8 and transformer oil, with lower viscosity, smaller viscosity-temperature slope from -20 to +50°C and greater oxidation stability on addition of 0.2% Ionol anti-oxidant (meeting specification ГОСТ 981-85 (GOST 981-85). If 0.7% Ionol is added, exceptional high temperature oxidation stability is obtained, giving only 0.1 gm KOH per gm of oil for oxidation at 170°C. There are 2 tables.

Card 2/2

KREYN, S.E., red.; SANIN, P.I., red.; MONASTYRSKIY, V.N., red.; EMINOV, Ye.A., red.; LEVINA, Ye.S., vedushchiy red.; TITSKAYA, B.F., vedushchiy red.; POLOSINA, A.S., tekhn. red.

[Additives to oils and fuels; papers read at a scientific and technical conference] Prisadki k maslam i toplivam; trudy nauchno-tekhn. soveshchaniia. Pod red. S.E.Kreina i dr. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 394 p. (MIRA 14:11)

1. Vsesoyuznoye nauchno-tekhnicheskoye soveshchaniye po prisadkam k maslam i toplivam, 1960. 2. Institut neftekhimicheskogo sinteza AN SSSR (for Sanin). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva (for Monastyrskiy).

(Fuel—Additives) (Lubrication and lubricants—Additives)

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33589
S/204/61/001/005/007/008
E075/E484

AUTHORS: Kreyn, S.E., Rubinshteyn, I.A., Popova, Ye.A.

TITLE: Influence of organic sulphur compounds on the oxidation of stability of lubricating oils

PERIODICAL: Neftekhimiya, v.1, no.5, 1961, 683-690

TEXT: The paper describes investigations into the oxidizability of lubricating oil distillates from Tuymazy crude oil subjected to different depths of phenol extraction. The oils contained from 6.3 to 25.3% sulphur compounds and from 16.9 to 34% aromatic hydrocarbons. The saturate content varied between 76.8 and 40.7%. In addition a series of oils was studied containing from 4.2 to 11.2% of the same type of sulphur compounds. The oils with a low sulphur content were prepared by oxidation with 30% H_2O_2 in acetic acid for 3 h at 70°C, followed by silica gel separation of the oxidized sulphur compounds. The oxidation was studied by obtaining oxygen absorption curves at 150, 170 and 200°C for 24, 12 and 6 hours respectively. After oxidation, the amounts of strong (sulphonic) and weak acids were estimated by potentiometric titration and sludge determined by filtration and weighing. It

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Influence of organic sulphur ...

was concluded from the results that the best temperature of oxidation was 170°C. At this temperature full oxidation took place in 12 hours and good differentiation between different oils was obtained. The results show that the oxidation stability of the phenol extracted oils increases with the depth of extraction. The oxidation of the oils containing different amounts of the same type of sulphur compounds indicated that an optimum concentration of the latter exists, which gives the greatest oxidation stability. This concentration is approximately 0.4%. It is thought that the sulphur compounds in general oxidize more readily then the hydrocarbons and at low concentrations decompose peroxides. At high concentrations, however, the sulphur compounds react directly with oxygen and then the oxidation rate increases. The formation of sulphonic acids takes place only when the sulphur content is above about 0.4% and then increases linearly with the sulphur content. The total acidity also increases linearly with the sulphur content and its minimum value is reached at the sulphur content of 0.4 to 0.5%. The amount of sludge forming on oxidation is proportional to the square of the sulphur content in

Influence of organic sulphur ...

the oil, the proportionality constant characterizing the speed of sludge formation. This agrees with the postulated bimolecular reaction of sludge formation from sulphonic acids and aromatic hydrocarbons. N.G.Kalantar and Ye.P.Soboleva are mentioned in the paper in connection with their contributions in this field. There are 6 figures, 2 tables and 11 references: 9 Soviet-bloc and 2 non-Soviet-bloc. The reference to an English language publication reads as follows: Ref.2: G.H.Denison, P.C.Condit. Ind. Engng. chem., v.37, no.11, 1945, 1103.

SUBMITTED: August 14, 1961

Card 3/3

KREYN, S.E.; CHERTKOV, Ya.B.

Sixth scientific session on the chemistry of sulfur organic compounds of petroleum and petroleum products. Khim. i tekh. topl. i masel. 6 no.10:70-71 O '61. (MIRA 14:11)
(Petroleum products)

ABRAMOVICH, S.Sh.; VIPPER, A.B.; GOL'DBERG, D.O.; KREYN, S.E.; KULINICHEVA, M.A.; FATKULLINA, N.S.

Influence of the depth of phenol purification on the group chemical composition and properties of viscous distillate oil from sour crude. Trudy Bash NIINP no.5:259-272 '62. (MIRA 17:10)

KREYN, S.E.; VIPPER, A.B.; GOL'DBERG, D.O.; [illegible]

Influence of the depth of the phenol purification of distillate and residual components on the working properties of compounded oils from sour crude. Trudy Bash NIINP no.5:[illegible].

(MIRA 17:10)

KREYN, S.E.; KALASHNIKOV, V.P.; SHEKHTER, Yu.N.; YEVSTRATOVA, N.I.; DOL'BERG, A.L.

Production of clear sulfonate additives. Khim.i tekh.topl.i masel 7 no.2:19-24 F '62. (MIRA 15:1)

1. Moskovskiy zavod "Neftegaz".
(Lubrication and lubricants—Additives)

L3191

S/065/62/000/012/004/005
E075/E135

AUTHORS: Vipper, A.B., Kreyn, S.E., Bernshteyn, S.S., and Lisovskaya, M.A.

TITLE: Investigation of the dispersing capacity of used oils with detergent additives by the oil spot method

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no.12, 1962, 50-55

TEXT: The method of oil spots (spreading of used oil drops on a filter paper) was used to rate the dispersant properties of oils МТ-16 (MT-16) from Novokuybyshev refinery, containing additive ИП-22К (IP-22K). Samples of the oils used in a single cylinder diesel engine for 30 and 54 hours had the same dispersive capacity at 20 °C, but at 150 °C the oil used for 54 hours had markedly inferior dispersive properties. Oils MT-16 from Novokuybyshev and Yaroslav refineries containing 6% of additive ВНИИ НП-360 (VNII NP-360) had different dispersivities at 20 °C, but similar dispersivities at 150 °C. The Novokuybyshev oil containing the additive loses its dispersive properties with increasing temperature

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more rapidly than the Yaroslav oil. It was established that differences in the response of the base oils to the same additive are largely due to resins which have strong dispersive activity at room temperature, but lose it at 100-200 °C. The resins produced in sulphurous Kuybyshev oil are the more efficient dispersants. Also the dispersive capacity of the more polar resin fractions, obtained by chromatography on silica gel, is higher than that of the less polar fractions. At temperatures above 100 °C the resins lose their effectiveness and the dispersive capacity of the two oils is mainly influenced by the additive. Thus the response of various base oils to detergent additives depends on the nature and quantity of resins accumulating in the oils during engine operation. There are 3 figures and 1 table.

Card 2/2

VINOGRADOVA, Irina Ernestovna; KREYN, S.E., prof., doktor tekhn. nauk, red.; KREYN, S.E., red.; ENISHERLOVA, O.M., ved. red.; VORONOVA, V.V., tekhn. red.

[Additives for lubricants to reduce friction and wear] Prisadki k maslam dlia snizheniia treniia i iznosa. Moskva, Gostoptekhizdat, 1963. 110 p. (MIRA 16:6)
(Lubrication and lubricants)

SHEKHTER, Yuliy Naumovich; KREYN, Solomon Efraimovich; KALASHNIKOV, Viktor Petrovich; LEVINA, Ye.S., red.; STAROSTINA, L.D., tekhn. red.

[Oil-soluble sulfonates; their production and uses] Maslorastvorimye sul'fonaty; proizvodstvo i primenenie. Moskva, Gostoptekhizdat, 1963. 124 p. (MIRA 16:10)
(Mineral oils) (Sulfonation)

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Investigation of motor oil performance and methods of evaluation

Report to be submitted for the Sixth World Petroleum Congress, Frankfurt, 16-26 June 63

L 10123-63 EPF(c)/BDS/EWT(m) AFFTC/APGC Pr-4 RM/EW/WW/MAY/DJ

ACCESSION NR: AP3001320 S/0933/63/005/000/0236/0243

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TITLE: Effect of organosulfur compounds on the oxidizability of lubricating oils [Report presented at the Sixth Scientific Session on the Chemistry of Organosulfur Compounds of Crude Oils and Petroleum Products, held at Ufa, 27 June - 1 July 1961]

SOURCE: AN SSSR. Bashkirskiy filial. Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh, v. 5, 1963, 236-243

TOPIC TAGS: lubricating oils, organosulfur compounds, oxidizability, Tuymazy, oil distillates, phenol refining, oxidation products, sulfonic acids, carboxylic acids, sediment formation

ABSTRACT: The oxidizability of lubricating oils containing organosulfur compounds has been studied with oil-distillates from Tuymazy crude, phenol-refined to various degrees and dewaxed, and with several specially prepared specimens.

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